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Journal of The Canadian Hospital Association

Canadian Hospital

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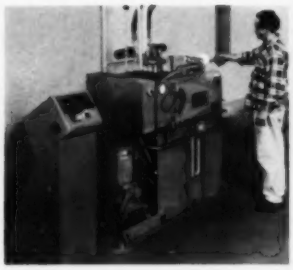

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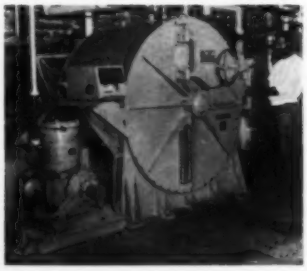

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CANADIAN HOSPITAL

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Authorized as Second Class Mail, Post Office Department, Ottawa.

CCAB

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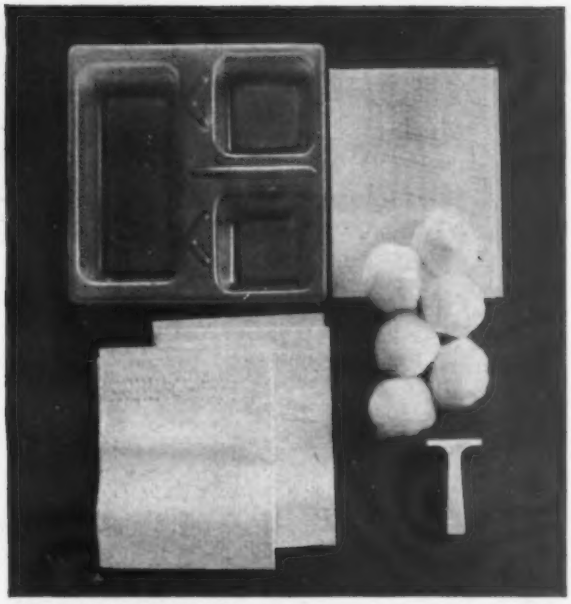

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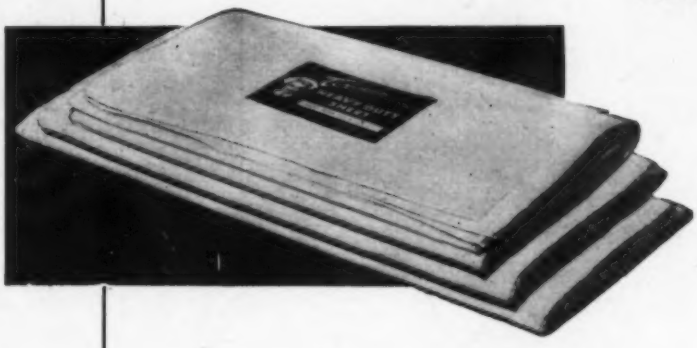

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Duchess Potatoes, so easy to make with Kraft Instants, give this plate a festive touch, as do country gravy over breaded veal cutlet and carrots glazed with Casino dressing.

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MAY, 1961

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notes about people

Appointment at Ottawa Civic

Dr. Finlay McKerracher has joined the staff of the Ottawa Civic Hospital, Ottawa, as assistant director (services). Dr. McKerracher is a medical graduate of St. Andrew's University, Scotland, and has also completed the Canadian Hospital Association's extension course in hospital organization and management. For ten years after receiving his medical degree, Dr. McKerracher worked as clinician in the United Kingdom and in the Far East, and worked in the field of tuberculosis in Newfoundland. Subsequently for a three-year period, Dr. McKerracher was assistant superintendent of the General Hospital at St. John's, Nfld., and more recently has been hospital administrative consultant with the New Brunswick Hospital Services Commission.

Dr. Finlay McKerracher

In his new position, Dr. McKerracher will be responsible for the administrative supervision of several clinical and ancillary departments and will also act as the administrative representative on various medical staff committees of the Ottawa Civic Hospital.

Speaking on behalf of the hospital, Douglas R. Peart, executive director, states that the hospital is extremely fortunate in procuring the services of Dr. McKerracher who will strengthen administrative controls in such departments as admitting, medical records, physiotherapy, food service and, above all, emergency and out-patient departments which are so extremely important and busy at the hospital.

Secretary of R.N.A.O. Retires

The executive secretary of the Registered Nurses' Association of Ontario, Florence Walker, has announced her retirement from the organization. Miss Walker came to the R.N.A.O. in 1945 as associate secretary, becoming secretary-treasurer in 1948. During her 16 years with the association, Miss Walker has witnessed great expansion and changes within the organization.

Miss Walker completed her university education in British Columbia and graduated from the Hamilton General Hospital school of nursing. She obtained her teaching certificate from the McGill School for Graduate Nurses and taught for three years at Hamilton General before going back to British Columbia. There she remained for some time, holding various positions at the Vancouver General Hospital. Before joining the R.N.A.O. Miss Walker was assistant secretary of the Canadian Nurses' Association.

Miss Walker will be succeeded by Laura W. Barr, who joined the association as assistant executive secretary last September.

Assistant to the Executive Director at C.C.H.A.

Marc Tardif, M.D., has been appointed assistant to the executive director of the Canadian Council on Hospital Accreditation, effective June 1. Dr. Tardif obtained his degree in medicine at Laval University and for eight years had a general practice in Granby, Que. Prior to his new appointment, Dr. Tardif was director of out-patient clinics at Hôpital Notre-Dame, Montreal, Que. Dr. Tardif was medical administrator and interpreter at the International Hospital Federation 1960 study tour of the United States.

New Administrator at Cornwall

The board of directors of the Cornwall General Hospital, Cornwall, Ont., has announced the appointment of Kenneth S. McLaren as administrator of the hospital. Previous to this appointment Mr. McLaren was assistant professor in hospital administration at the University of Toronto.

Mr. McLaren was educated in Saskatchewan, and began working there first as an elementary school teacher and later as high school teacher. From 1952 to 1956, Mr. McLaren was director of staff training and personnel at a Saskatchewan mental hospital. In 1956 he attended University of Toronto to attain his diploma in hospital administration. He graduated in 1958 and received the Robert Wood Johnson Award.

New Administrator at Peace River

Burt L. Baldridge was appointed administrator of the Peace River Municipal Hospital in Alberta, after completing ten years of service as secretary and business manager at the Provost Municipal Hospital, also in Alberta. Mr. Baldridge is a 1957 graduate of the Canadian Hospital Association's course in hospital organization and management.

J. S. Crawford retires from the Hospital for Sick Children

J. Stuart Crawford, appointed as accountant in 1924 at the Hospital for Sick Children, retired in April, after 37 years of service. Four years after his appointment Mr. Crawford was promoted to secretary-treasurer, the position he held until 1956, when for health reasons he requested relief from these duties. However, he continued to render valuable service to the hospital. Since 1958 he has completed three special assignments for the hospital: the writing of a history of the hospital from 1918 to 1958, the re-writing of the by-laws of the hospital and the medical staff by-laws, rules and regulations, (in collaboration with others), and the compilation of a manual of administrative instructions for the house staff.

Appointment to a Health Study Program in Jamaica

Charles B. Walker, statistician in the research and statistics division of the Department of National Health and Welfare, will be the World Health Organization consultant in a study of public health problems to be carried out by the Government of Jamaica. The study will examine present work programs of public health nurses and inspectors, determine the trend of

(continued on page 26)

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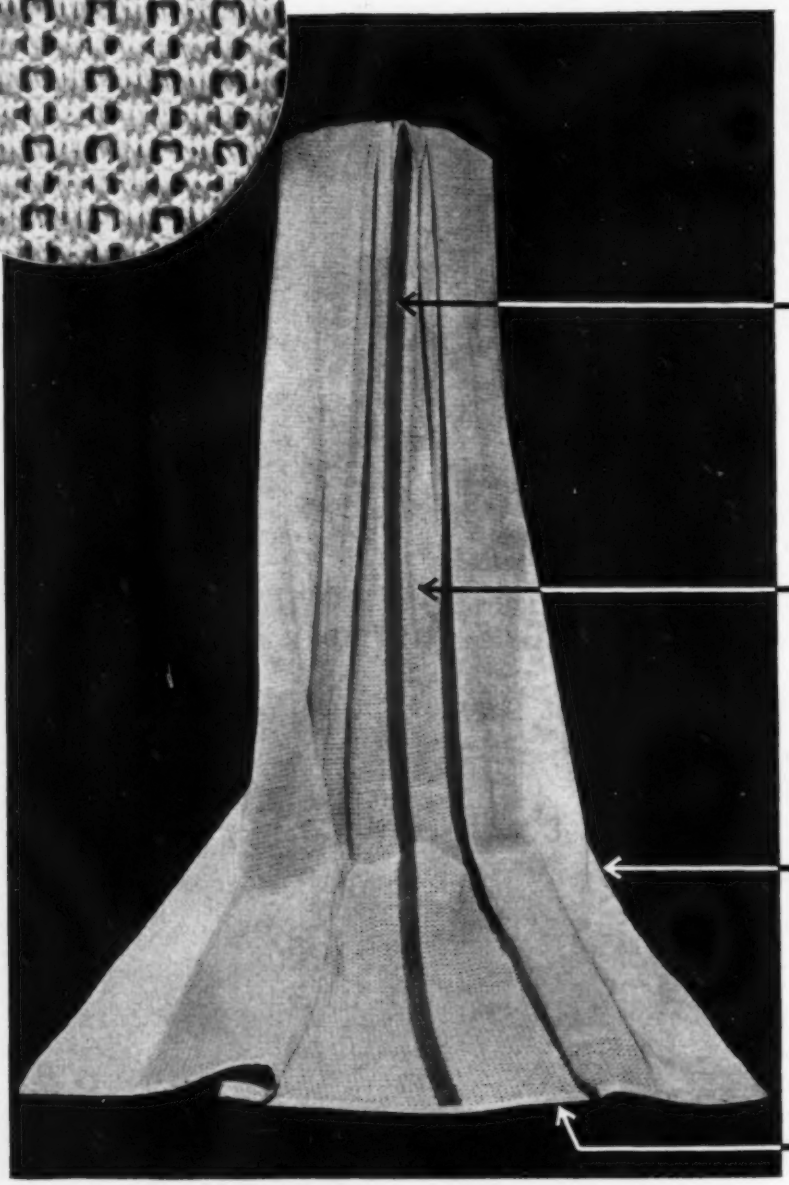

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Cellular Leno Weave for maximum warmth and comfort with minimum weight.

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REFERENCES: *(1) Coon, W. W.; Wolfman, E. F., Jr.; Foote, J. A., & Hodgson, P. E.:* Am. J. Surg. **98**:*4, 1959. (2) Friedman, E. A.; Little, W. A., & Sachtleben, M. R.:* Am. J. Obst. & Gynec. **79**:*474, 1960. (3) Margulis, R. R., & Brush, B. E.:* Arch. Surg. **65**:*511, 1952. (4) Personal Communications to the Department of Clinical Investigation, Parke, Davis & Company, 1959.*

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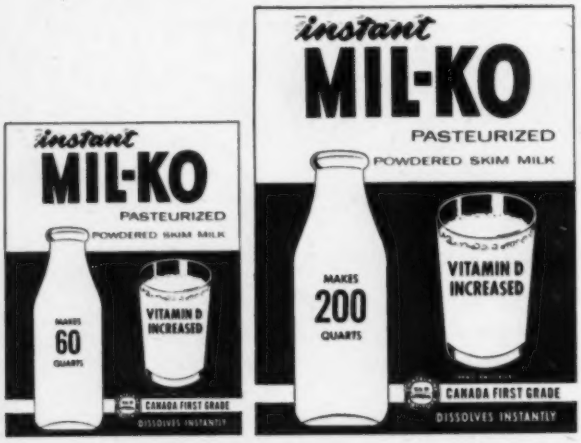

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People
(continued from page 20)

public health problems now facing the island and make recommendations regarding use and training of staff. The health of the average islander has been improving, though protein deficiency continues to be a problem. In addition other ailments are making themselves felt, such as polio.

Mr. Walker's assignment is an example of work being done by officials of the Department of National Health and Welfare in assisting the West Indies and Central American countries in health and welfare studies. Other members of the Department involved in this general program are R. E. Curran and Dr. Joseph W. Willard, Deputy Minister of Welfare.

This technical assistance work for which Canadians are loaned to W.H.O. is in addition to Canadian contributions to the West Indies under the Canada-West Indies Aid Program, through which Canada has undertaken to provide aid to the value of $10,000,000 over a five year period.

At Montreal Children's

Mary Gower-Rees has been appointed to the nursing department of the Montreal Children's Hospital as assistant director. Miss Gower-Rees, a 1947 graduate of the Montreal General Hospital School of Nursing, acquired her diploma in teaching and supervision in paediatric nursing from the School for Graduate Nurses, McGill University, in 1955.

Miss Gower-Rees comes to the hospital very well qualified, having had a wide range of experience in paediatrics.

New Director of Nursing at Guelph General

Ruth Gaw recently submitted her resignation as director of nursing at the Guelph General Hospital, Guelph, Ont., to be effective on August 31 of this year. Miss Gaw came to the hospital in 1950 and during her term of office she has witnessed considerable growth and expansion at the hospital.

Lois Campbell will succeed Miss Gaw as the new director. Miss Campbell obtained her basic education in nursing at the Guelph General and she also took a certificate course in nursing education at the University of Toronto. She has recently completed a course in post-graduate work at the University of Western Ontario and is the holder of a B.Sc.N.

New Head at Beck Memorial

L. M. Spratt, M.D., assistant superintendent of Beck Memorial Sanatorium, London, Ont., since 1951 has been appointed superintendent, effective September 20.

Dr. Spratt joined the sanatorium staff in 1927. He was senior physician of the institution for many years before his appointment as assistant superintendent.

Burnaby's Administrator Retires

Burnaby General Hospital's administrator, Harry Baxendale, has announced his retirement from that position this year. Mr. Baxendale was appointed administrator of the hospital in 1951, coming to Burnaby, B.C. from Duncan, where he had been administrator of the King's Daughters Hospital.

• Dr. Armand Frappier, director of the University of Montreal's Institute of Microbiology, was elec-
(concluded on page 34)

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The all-new Dual-Speed EK-III sets a new standard in high fidelity electrocardiography for recording the fine details of rapid, small deflections. With its sensitive recording system the dual-speed paper drive with 50 mm per second speed to enlarge the horizontal dimensions of heart complexes becomes highly important.

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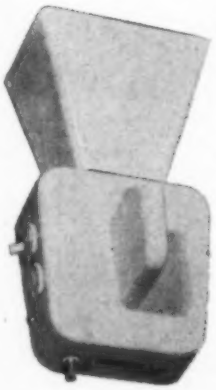

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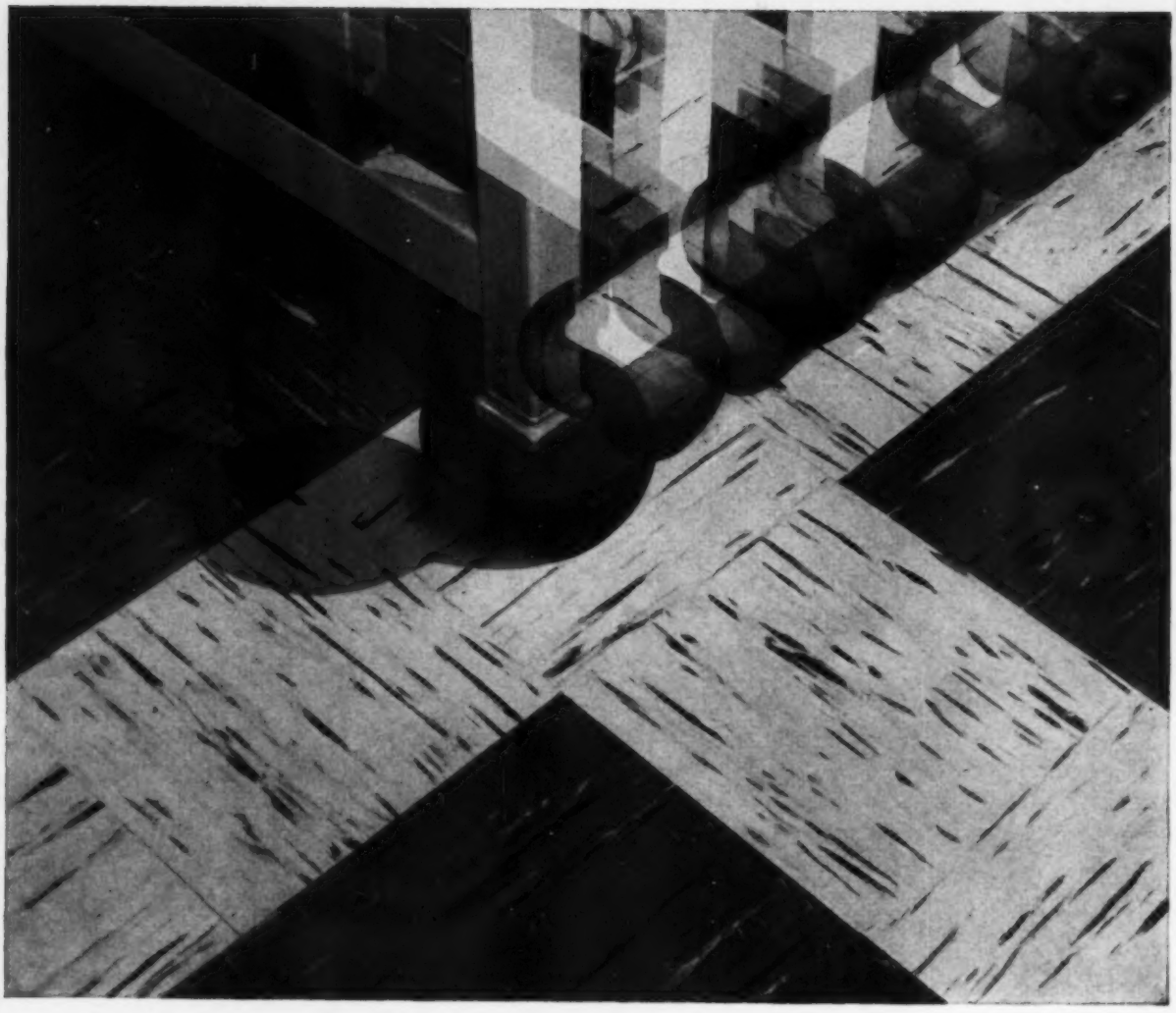

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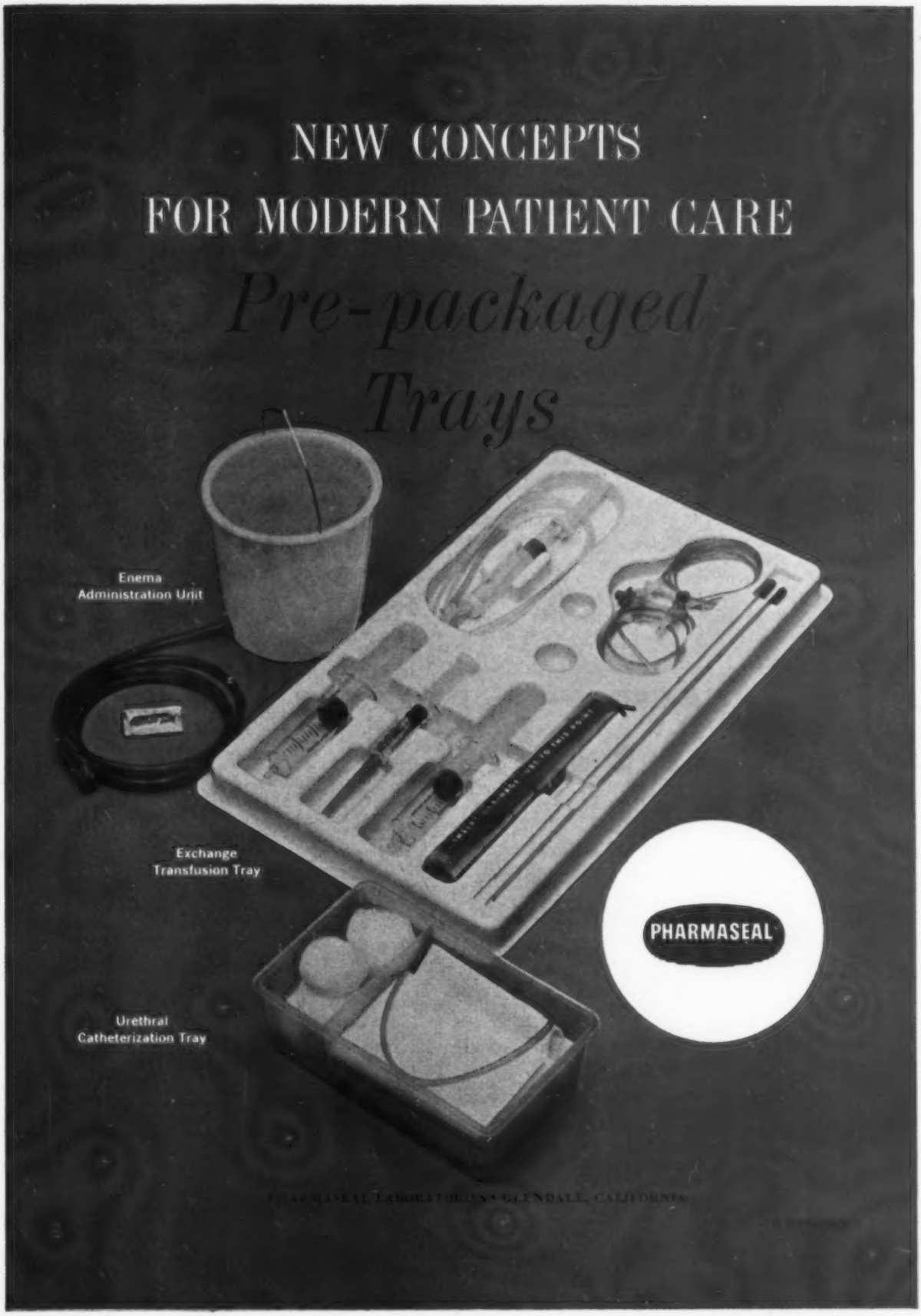
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People
(concluded from page 26)

ted chairman of the city's Board of Health—an advisory committee of the municipal health department.

• The board of governors of the Belleville General Hospital, Belleville, Ont., approved the appointment of Dr. James H. Forrester as chief of the medical staff.

• The chairman of the Prince Edward County Memorial Hospital Board, in Picton, Ont., J. M. Hartwick, has announced his resignation after three years of service at the hospital. Succeeding J. M. Hartwick will be J. Donald Baxter.

• G. C. Furr, Jr., has been elected president of the board of governors of the Lachine General Hospital, Lachine, Que.

• Mrs. K. Morrison, health nurse at the Kitchener-Waterloo Hospital since May, 1947, has resigned from this post to assume the position of director of nursing at the Wingham General Hospital, Wingham, Ont.

• Sister Helen Marie of Providence Hospital, High Prairie, Alta., has received a $350 scholarship for the annual course in hospital housekeeping at Michigan State University, East Lansing. The course is sponsored by the American Hospital Association in co-operation with the university.

• Dan Kelly, accountant and secretary-treasurer at the Prince Edward County Memorial Hospital, Picton, Ont., has resigned from the hospital to accept the position of business manager at the York County Memorial Hospital in Newmarket.

• The new business manager at the Hotel Dieu Hospital in Cornwall, Ont., is Arthur J. Fry, a certified general accountant with more than 17 years of experience in industrial and municipal accounting.

A.C.H.A. Activities

Dr. Louis W. Norris, president of Albion College in Michigan, was the guest speaker at the A.C.H.A. annual administrators' luncheon, held on May 1, the opening day of the Tri-State Hospital Assembly at the Palmer House in Chicago. Dr. Norris, who is a frequent contributor to professional publications and is the author of two books: *Polarity: A Philosophy of Tension Among Values*, and *The Good Old Days*, discussed "A Challenge to Confront all Administrators".

Dr. L. O. Bradley, administrator of the Winnipeg General Hospital, Winnipeg, Man., has been named chairman of the College's Article Award Committee by Ray E. Brown, chairman of the general planning committee for the congresses on administration. A previous member of the committee for a number of years, Dr. Bradley will assist in the selection of an outstanding article to be commended formally at the fifth annual congress in February, 1962. The author of the article will receive the A.C.H.A. Article Award. The Article Award Committee is also charged with the selection of the annual Edgar C. Hayhow Award. In 1959, this award was won by a Canadian, Professor Oswald Hall of the University of Toronto's Department of Sociology.

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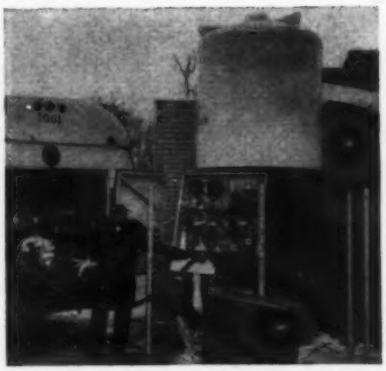
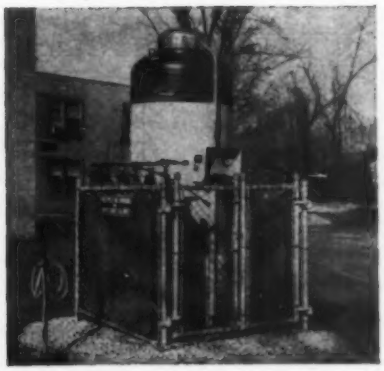


Surprisingly compact, this 90 VCC unit holds 90,000 cu. ft. of oxygen. It's a relatively small package because at atmospheric pressure liquid oxygen in its gaseous state would require 862 times more storage space.



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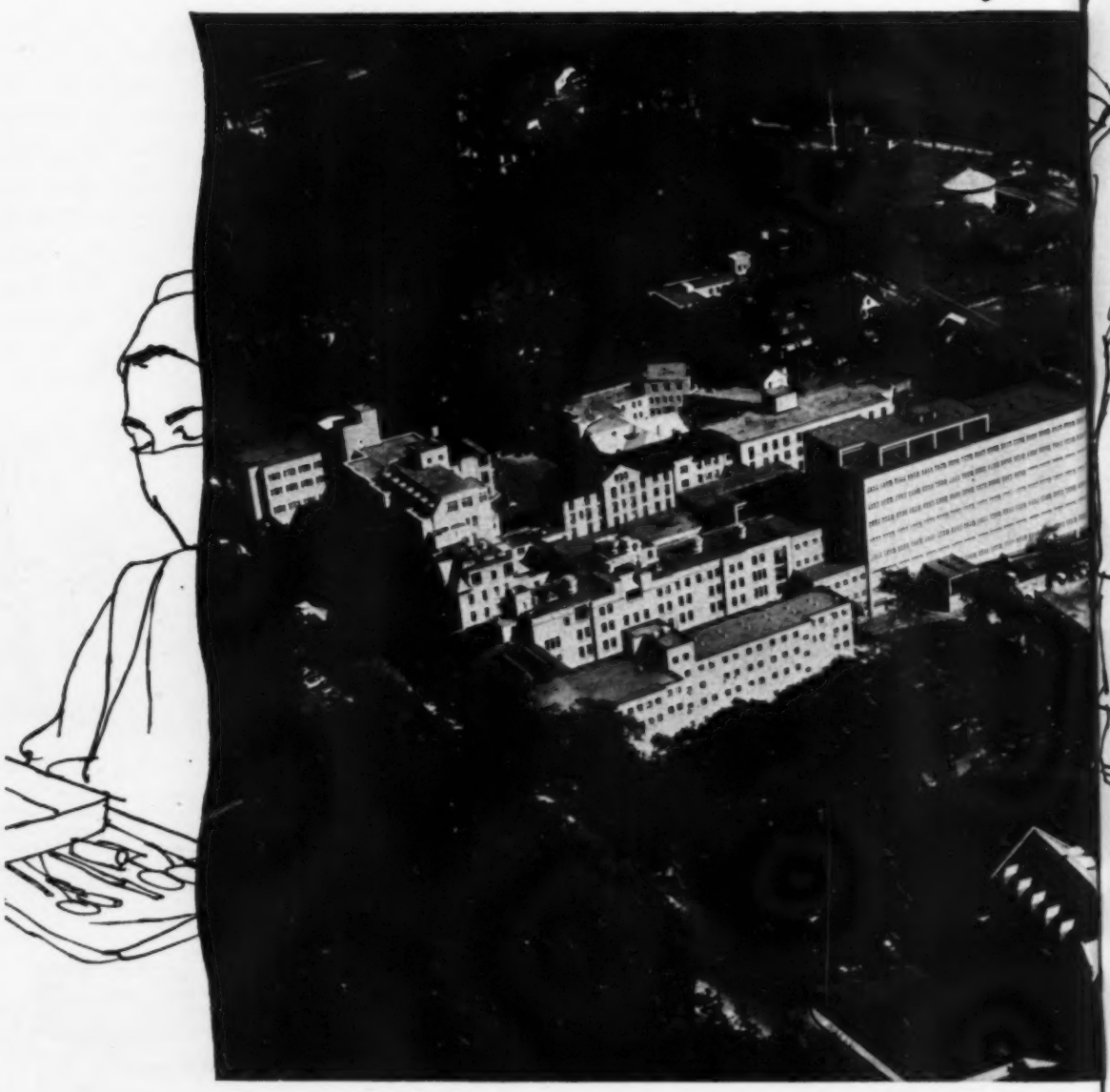

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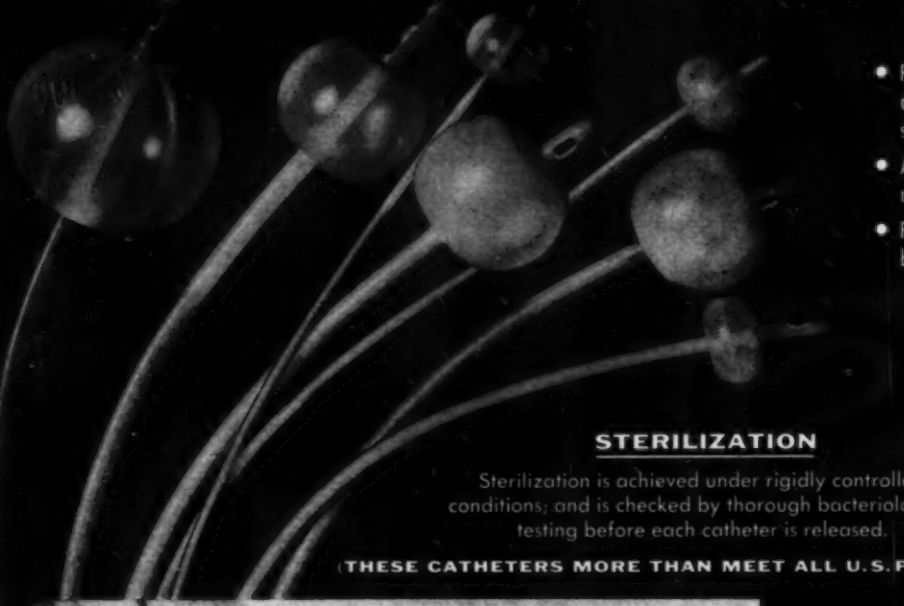

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EDITORIAL

W. Douglas Piercey, M.D.

C.H.A. Assembly Meeting, 1961

THE 1961 assembly meeting of the Canadian Hospital Association will be held at the Park Plaza Hotel, Toronto, on May 24, 25 and 26. The assembly is comprised of the board of directors and delegates appointed by associations and conferences which are active members of the C.H.A. Although voting is restricted to delegates, anyone wishing to attend will be welcomed.

This year, in order to permit ample time for discussion of association business as well as current topics of interest to associations and individual hospitals, only two formal addresses are planned—the presidential address and a presentation on the administrative audit. Also, in order to save time, various reports will not be read but will be circulated to delegates prior to the meeting and a session will then be devoted to discussion of them. Nursing education, consultative services, pension plans, hospital-medical specialists arrangements, the Professional Activity Study, accreditation, and hospital insurance are some of the subjects scheduled for discussion.

On the first day, Wednesday, May 24, a social hour is planned to permit delegates and visitors an opportunity to get acquainted.

A dinner will be held on Thursday evening, May 25, at which time the George Findlay Stephens Memorial Award will be presented to the Rt. Rev. John G. Fullerton, D.P.

The National Council of Women's Hospital Auxiliaries are meeting concurrently, also at the Park Plaza Hotel.

Preceding the assembly meeting, on Tuesday, May 23, the secretaries of the hospital associations will meet for a day at 25 Imperial Street, when topics of interest to both the provincial and national associations will be discussed.

Announcing: the 1961 Canadian Hospital Directory

THE ninth edition of the *Canadian Hospital Directory* is now available to the hospital field. It follows the format of previous years quite closely, having as its major divisions: tables showing distribution of hospitals according to type, size and bed distribution; a list of hospital and nursing institutions; hospital associations and allied organizations; educational programs conducted for hospital personnel; and a section on hospital construction in Canada.

One major change in format has been made in that all advertising material has been grouped under appropriate headings at the front of the book to form a *Hospital Buyers' Catalogue File.* This has been done to provide hospital buyers and purchasing agents with an all-Canadian purchasing guide for easy reference.

We hope the directory will continue to serve as a reference book for people in the hospital field and we acknowledge the co-operation and assistance of the many hospital administrators, government officials, organizations and supply houses who combined to make this publication possible.

What the administrator needs to know about

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WITH the expansion of our hospital to 750 beds, we built a completely new laundry and linen distribution service. In contrast to the old laundry which had become totally unsatisfactory, we now have a unit ultra in every respect, even to music operated by central control.

A hospital administrator cannot possibly be expected to know all of the technical aspects of the operation of a laundry and linen service and, for this reason, he hires or should hire a top flight laundry manager. But the administrator should explore and implement the most efficient and economical means of providing a service consistent with good patient care.

I personally lean toward a hospital providing its own laundry service as opposed to depending on commercial enterprise. The latter may be more convenient in many ways, but this sort of thing could be carried to the ridiculous. Dietary, window cleaning, housekeeping—could all be provided commercially. The administrator would then become nothing more than a co-ordinator of concessionaires. A hospital can only justify operating its own laundry, of course, if it is known that it can do so more economically and efficiently than by sending it out. If not, then it has no alternative.

What then should the administrator look for in the efficient operation of his hospital's laundry and linen service? The area covered ranges from cost of operation to personnel and working conditions. In between and not necessarily in order of importance, we find linen selection and purchasing, equipment, tests and research, distribution, storage, work flow, maintenance, inventory control and marking, cleanliness, humidity and ventilation, colour, lighting, and safety. An administrator should have at least a talking knowledge of all of these aspects.

Quality of Linen

Textiles are composed of certain basic fibres which are spun into yarn. The yarn is woven into cloth. In order to achieve a high grade of cloth, the fibre must possess certain basic qualities. Tensile strength is probably the most important. Length determines the usefulness of a textile fibre. Cohesiveness is essential. This is the ability of a single fibre to hold to another as it is spun into yarn. Also important are pliability, uniformity, porousness, and durability.

Shrinkage is likewise an important consideration. No laundering process, no matter how carefully applied, will offset shrinkage if the material has not been preshrunk. It is wise, therefore, to specify that materials are guaranteed not to shrink more than one per cent.

Some manufacturers, in order to increase cloth yardage during the weaving process, increase tension on the weaving machine. The cloth is then in a stretched condition and will retract to a normal unstretched length at the first laundering — resulting in heavy shrinkage. When a fabric is heavily sized or starched, it may require several washings to remove all the sizing before it has retracted to its normal length. This is the cause of progressive shrinkage and is obviously not the result of faulty laundering. Insist on the one per cent shrinkage factor.

Thread count is also a basic consideration. Woven materials are made with threads running over and under one another at right angles. Those running lengthwise are called warp; those running crosswise are called weft.

High quality sheets generally are supplied in thread counts varying from 132 to 184 threads per square inch for finer materials such as percale. Good materials are woven closely enough for strength but open enough to permit water and cleaning agents to flow through the weave. From our experience, where linens are subjected to more frequent washings than in home use, for example, we have found a 142 thread count to be the most practical.

From an address presented at the Maritime Hospital Association Institute on Administration in April, 1961, Moncton, N.B. The author is administrator, Toronto East General and Orthopaedic Hospital, Toronto, Ont.

Weave is important, for too loose a weave can cause wrinkling on the bed, which is uncomfortable for the patient; too close a weave makes laundering difficult and adds unnecessary weight with no increase in durability.

Close control of laundering formulae is essential if textiles are to provide reasonably long life. Accuracy in measuring bleaching chemicals, in mixing them with water, and a thorough rinsing process are important to long life of the material. Errors and carelessness can be expensive.

Distribution

Without proper distribution of the laundry's product the administrator will suffer many headaches, not to mention the patient, and much abuse can occur.

There are several methods — by requisition, the pack method, direct allocation, and the daily census quota, to mention the most popular. Neither the pack method, where linen requirements are made up into packs per bed, nor the direct allocation where linen is marked for each nursing unit, appeal to me. We have tried the requisition method whereby the head nurse completes a daily requisition of her linen requirements, and it was an utter failure. Invariably the amount requisitioned was in excess of actual requirements — to avoid any possible shortage. This is human nature and difficult to counter. We have operated on the daily census quota basis for some time now with very satisfactory results. How does it work?

Linen requirements are distributed on the basis of the census report as of the night previous, and where occupancy is fairly constant, as with us, this does not constitute a problem. The linen is distributed to the nursing units at 7:00 a.m. At 10:00 a.m., a recheck is made and a list prepared to meet the requirements for probable discharges and incontinent patients. This supply is distributed by 12:00 o'clock noon, taking into account any shortage or over-supply of the 7:00 a.m distribution. Emergencies are handled on request. The following day's requirements are then prepared on the new census figures. Operating room, case room and nursery linens are returned as processed, without regard for procedures or census. This system works, believe me, and with fewer headaches for all concerned.

How much linen should you have in circulation? We tried the conventional four sets and found this to be nothing more than false economy. It is not enough for an active treatment hospital with an average patient stay of 9.5 days.

We established a standard of five sets. The initial investment is more costly, but an adequate linen supply can very often reduce costs by providing longer life for textiles. This results from reducing the number of washings that each would have with a lower supply.

The prime objective for linen control should not be to curtail expenses, but to provide improved service without increasing cost. By elimination of waste and abuses that may be present, the economies can be channelled to more frequent linen changes and greater patient satisfaction.

Two other methods of control which I should mention briefly are the physical inventory, which takes place twice annually, and the dating of linen, *i.e.*, stamping in one corner the date it was put into circulation.

Inventory is a frustrating procedure. It seldom, if ever, is 100 per cent accurate, and the best that it does for you is to indicate trends and possible losses by theft or misuse. Let's say it is a necessary evil.

When designing our new laundry we considered wall shelving for linen storage, but were fortunate enough to hear of mobile storage trucks. These are inexpensive units which can be assembled by your own maintenance department. They consist of four shelves roughly 5′ by 3′ within a framework and mounted on casters. They are simply rolled over to the conveyor belt, loaded and then placed against the wall, thus saving many steps that would be needed with stationary wall shelving.

Employees

One of the major concerns of any administrator should be not only the welfare of patients but also the welfare of employees and the conditions under which they have to work. As a general service department, too often forgotten except when something goes wrong, the laundry warrants full consideration in this respect. Laundry work is repetitious, and lacks variety. It is machine pace setting, and is non-creative. Thus it could be subject to high staff turnover if the sympathies of the administrator were not directed that way occasionally.

I can think back now to the days of our old laundry. During the hot summer months we provided free soft drinks and an ample supply was on hand at all times. We provided a record player to break the monotony. Whether this helped or not I don't know, but even under rather grim conditions there was little turn-over. Maybe it was an indication that administration was conscious of their situation and such recognition was as salve to the wound.

For full all-out production, working conditions cannot be ignored. A happy, satisfied employee will take pride in his work and the result will reflect his state of mind.

What factors must the administrator consider? There are sev-

Flat-work feeding.

eral, the first of which is cleanliness. The floor, walls, and equipment, should all reflect the general atmosphere of the hospital. Yes, even the employees' uniforms. Cleanliness inspires, and the opposite condition should not be tolerated. We have two cleaners who do this job every night, and when the staff returns in the morning conditions are as they should be.

Cleanliness is not for employees only, for once the soiled linen leaves the sorting area and goes into the washers it should be handled with the utmost care to see that it is returned to the patient minus pathogenic organisms and general soiling through mishandling and dirty equipment. The sorting personnel are exposed to all sorts of possible cross infection but, oddly enough, this does not seem to present a problem. Nonetheless the floor of this particular area should be washed n i g h t l y with a disinfectant solution.

Ventilation is important. Heat, steam and general laundry odours can make work almost unbearable, particularly in the summer months. We have found that a complete air change every two minutes is satisfactory. This is accomplished by ventilating equipment consisting of input and exhaust fans, together with the necessary duct work to distribute the fresh air evenly throughout the laundry area. The exhaust duct work is located over the flat work ironers, washroom and tumbler areas.

Lint presents a fire hazard in a laundry and lint traps should be provided in the exhaust duct work adjacent to your flat work ironers and tumblers. These should be cleaned daily.

An efficient ventilating system is necessary, but it can lead to a lack of humidity. The passing of flat work through the ironer creates a static condition on the receiving end that is a definite hazard to the folder. In fact, in our situation, it is a major problem; so much so that girls working on the ironer have received minor burns. Our solution is to inject steam into the intake duct in such quantities as to eliminate the static build-up.

Lighting in the laundry should be at least a minimum of 40 foot-candles. Where staff are working with and around equipment with moving parts such as washers, extractors, ironers, et cetera, poor lighting constitutes a hazard to life and limb. The safety of an employee is the administrator's responsibility. Flooring in the wash area should be of a non-skid tile, preferably with a carborundum base.

With regard to equipment, I do not consider myself qualified to go into detail. Nor do I intend to discuss wash formulae, times or bleaching. This is a highly technical operation and that is why we employ the services of a qualified laundry supervisor. However, in determining what is required, the administrator should look for equipment that is highly productive and, in the case of a large hospital, as automatic as possible. This cuts down man hours. For example, one washman could attend four automatic washers. Non-automatic might require two or three washmen.

Highly productive and automatic equipment can only be justified in a large hospital. I would suggest that a hospital of fewer than 150 beds with no thought of expansion, could do with less automation, for the saving in personnel is minimal.

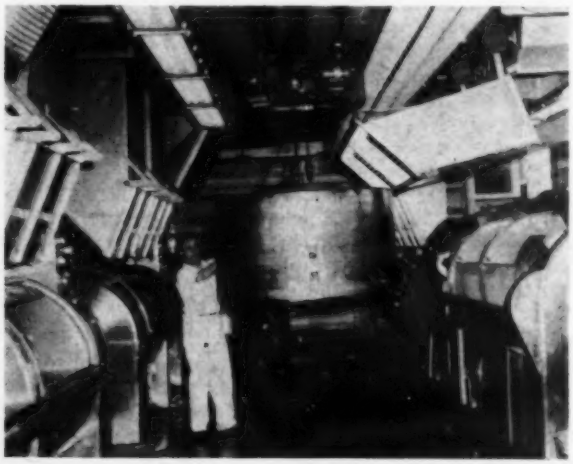
A further example of what I mean by productivity is best illustrated in our own laundry. We have three standard presses and two rotamatics. The latter are rotating presses, one large and one small. Each machine has one operator. We estimate that there is a saving of at least four employees. Such units would not be practical in a small hospital. One could not justify the higher capital investment.

As stated previously, the technical aspect of a laundry service should be left to the laundry supervisor. It is his job. The administrator is interested in results. For a number of years we held membership in the National Research Council, Laundry and Dry Cleaning Laboratory. One of the services of the Council is to provide an analysis of a test bundle of processed linens with special reference to detergency, whiteness retention, tensile strength loss and chemical damage value. These reports are extremely valuable to an administrator, for they indicate the efficiency and the reliability of the laundering process.

While technicalities are the business of the laundry manager, it is my contention that the administrator should have some knowledge of the washing process, and particularly, of what results when carelessness on the part of the washman enters the picture.

In our hospital we use what we call an initial rinse or flush with cold water. This cuts down the washing time, reduces stain, and results in a considerable saving of supplies. Load weight is extremely important and the manufacturer's recommendations in this regard should be carried out faithfully. Otherwise the entire washing process is thrown out of balance.

The extraction process should be watched closely. A 15 to 18-minute extraction time in our 54-inch extractor gives us a 50 per cent water retention, which we feel is ideal. A percentage in excess of this



Soiled linen enters the washers through chutes from the sorting room above. The laundry has five large washers and a small one for special items. Each washer has a capacity of 1700 pounds per hour.

slows down the entire processing and the result is a reduction in productivity.

Water control is also very important. For example, if the water is too hard it creates a build-up of lime deposit on the wash-wheels, et cetera. It also results in an excessive use of supplies, which requires extra rinses. In other words, it results in an overall loss of efficiency. Suppose the water is too hot? This causes the soap to break down too fast, resulting in a loss of soil absorption qualities. Now if the water is too cold the soap will not melt as quickly, requiring an excess use of soap; and this could result in poor whiteness retention. Also the bacteria killing qualities are minimized. If we use too much water this reduces the mechanical action, resulting in a poor quality wash. Too little water results in reduced soil removal, *i.e.*, poor washing.

The use of bleach is another consideration. Too much bleach causes an abnormal tensile strength loss. Insufficient bleach can result in poor whiteness retention. Actually, a good formula without the use of bleach is all that is required for whiteness. However, bleach is a good germicidal agent. When using bleach, a water temperature in excess of 160 degrees F. can be damaging. Soap is a soil carrying agent; that is, it absorbs the soil. Excessive use of soap results in waste, long rinses, and reduction in productivity.

One final consideration is sour, used to counteract acid in the bleach. If this operation is not controlled properly it will result in skin irritation among patients, and it also causes the sheets to roll as they are processed through the flat ironer.

The administrator should have a knowledge of the do's and don'ts in all the above processes, so that he can converse intelligently with his laundry manager.

Preventive maintenance in the laundry is another consideration for the administrator. Laundry equipment is hard working and subject to stress, strain, heat, and water, to mention a few damaging influences. In order that the normal life of the equipment may be preserved, a preventive maintenance schedule should be established and rigidly adhered to. In our case we have one mechanic assigned to the laundry and he works to a schedule of oiling, greasing, checking and adjusting. This is done nightly and any mechanical problems which occur during the day are noted for his attention.

With such a program breakdowns are infrequent; and I would suggest that an administrator would be delinquent in his duties if he paid little attention to this aspect.

Work Flow

Because a laundry is essentially a production service, work flow that will reduce to a minimum unnecessary steps and retracing of work distribution patterns is what we are looking for. Because of the variety of physical confinements and structure of laundries, I hesitate to make any firm recommendations as to how to achieve ideal work flow. This must be considered during the designing of the area; the layout of equipment should be such that from the receiving and sorting area to its resting place, the linen storage room, linens must move from one machine to another in as short a distance as possible. Retracing of direction leads to bottlenecks. Poor layout can negate all the advantages of highly productive and automatic equipment.

Cost

In order to substantiate my belief that it is advantageous for a hospital to do its own laundry rather than use a commercial service, I refer now to our cost studies.

This is the type of study which we have carried out annually on our laundry since 1953 and shows a comparison of costs for the years 1958, 1960 and 1961. No study was done in 1959 as that is the year we changed from the old to the new.

According to these studies there has been a marked reduction in the percentage of press work processed for 1961 and a gradual decline

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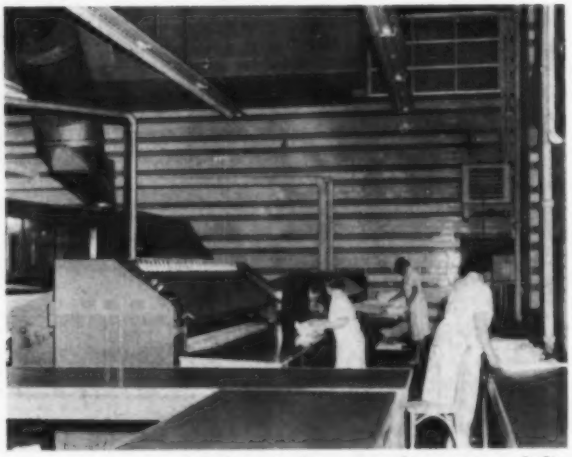

Flat-work ironer and conveyor belt to the linen room.

Linen room where all the linen from the flat ironer is collected, sorted and shelved for delivery to the floors.

What is Expected of the Housekeeping Department

Peter E. Swerhone
Winnipeg, Man.

CLEAN environment is essential to better patient care, better personnel relations, and better public relations in the hospital. The housekeeping department is assigned the responsibility of keeping the premises, equipment and facilities clean and orderly at all times. This is not simple when one considers the complexity of the modern hospital.

Functions

The functions of the housekeeping department can be divided into three categories:

Daily cleaning — all public floors such as reception room, entrance halls, corridors, elevators, stairways, patients' rooms and wards, emergency rooms, treatment rooms, dressing rooms, rest rooms, service rooms and supply rooms.

Periodic cleaning — window washing, wall cleaning, floor waxing and polishing, furniture washing and polishing, rug and carpet shampooing, upholstery cleaning, other work done bi-weekly, fortnightly and monthly.

Upkeep maintenance — painting, furniture refinishing, drapery making or repairing, repair and replacement of furniture and furnishings.

Internal administrative functions include the determination and justification of personnel, equipment, and supply requirements; selection, training, disciplining and supervision of housekeeping personnel; scheduling of work activities; study of new techniques for improving housekeeping service; requisitioning housekeeping supplies and equipment and re-issuing these to personnel in other services responsible for housekeeping duties such as in the surgery department.

Incidental functions of the housekeeping department are: control of noise; saving of heat and electricity by turning off unnecessary lights and radiators when not needed; economical use of supplies; development of public goodwill by a courteous, cheerful, but unobtrusive attitude toward patients and visitors; promotion of safety measures by observing and reporting dangerous conditions such as tripping hazards, frayed electric cords, splinters on furniture, et cetera; development of harmonious relations with employees in other departments; and turning in suggestions for improvements in hospital operation and working conditions.

General sanitation, including vermin and rodent control, is among some of duties of the housekeeper. Rodents and vermin control depend upon proper design and construction of the building and this, with proper building maintenance, will probably eliminate the problem. There are in most communities reliable pest control agencies with whom contracts for services may be arranged. The hospital itself may initiate its own program. Then personnel must be instructed in the proper selection and use of insecticides. This calls for the advice and consultation of sanitary engineers of the provincial health department. Proper disposal of all rubbish and waste is essential to rodent control.

I like the expression that the help knows how, but the housekeeper knows why. The day has gone when all we had to do was to watch a man mop a floor. Now we must set up rules and laws with

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The author is assistant administrator at the Winnipeg General Hospital, Winnipeg, Man. He gave this address at the Manitoba Housekeeping Institute in January, 1959.

our personnel and see that they are carried out to the letter. We must know how to deal with the hard floors, soft floors, vacuum cleaners, buffing machines, dry mops and wet mops. We must know how to take out stains, clean the enamel, stainless steel, walls, window shades and rooms. We must learn how to buy at the right price, and whether to use soap or a neutral cleaner. We should understand sanitation, fire prevention, safety, textiles and fabrics; how to make a bed, a linen bundle, or a discharge bundle; and as well, how to set up a sewing room, take care of torn linen, and run the laundry. In addition, we should learn about furnishings, decorations, window cleaning, hospital law, schedules, budgets, yearly reports, training program, fracture boards, balkan frames, Thomas splints, first-aid, oxygen tents, and paperwork.

Organization

For a great number of years the place of the housekeeping department in the hospital has been obscure. Although housekeeping is performed within every department in the hospital, it should be the sole responsibility of the executive housekeeper, who reports to the administrator or his assistant. She is given a position equal in importance to that of the supervisor of all other service departments. In smaller hospitals this duty may be combined with the executive duties of another department such as laundry, dietary, or nursing. In the larger hospitals, there may be a superintendent of buildings and grounds who supervises maintenance, engineering, housekeeping, and laundry activities. In this case, the head of the housekeeping department will report to the superintendent of buildings and grounds.

The hospital housekeeper must be a person thoroughly trained in all phases of housekeeping; she must be accepted by all other department heads; she must have a keen mind and a pleasant personality; she must understand human nature; she must have a firm hand and strong will-power; and she must have some creative ability.

Inter-department Relationships

Housekeeping involves contact with every other department in the hospital. Inasmuch as the work must be co-ordinated with the work of other departments, mutual understanding is essential. As you can see, the utmost co-operation is necessary. Planning is needed between the nursing and housekeeping departments to reduce overlapping of duties. Scheduling of cleaning duties must take into consideration the time of patients' treatments, doctors' visits, rest hours, meal hours, and visiting hours. Proper timing is essential to avoid food preparation by the dietary department, and cleaning by the housekeeping department at the same time. The housekeeper should be consulted by the purchasing agent when specifications and standards are being developed. The housekeeper must keep in touch with the admitting department at all times. She must find out when a room is to become vacant in order to prepare it for immediate re-assignment. Payroll and budget information of the housekeeping department must be available to the business office at the specified date. The housekeeping department must report needed repairs promptly to the maintenance department. The scheduling of cleaning before or after traffic of patients is important in such departments as x-ray, pharmacy, laboratory, and outpatient. If the housekeeping department is responsible for linen distribution, a work schedule will have to be worked out with the laundry service.

There must be a close liaison and an attitude of co-operation between the hospital housekeeping staff and the maintenance staff. Since the maids and housemen go in and out of toilets throughout the hospital more frequently than other employees, it appears to me that they should observe the faucets and flushometer valves in the toilets and report plumbing deficiencies to their supervisors immediately, so that they in turn may report the faults to the maintenance department for correction. The steady drip of a leaky faucet or the continuous flushing of a toilet may be a slight annoyance to the person who is well, but it can be extremely exasperating to one who is ill and unable to do anything about it. The patient who, perhaps, lies awake many moments of the long night can hear these noises very plainly, and they certainly do not add any measure of relief to his already disturbed condition.

There are more reasons than these which indicate that there should be a feeling of mutual helpfulness existing between the housekeeping and the maintenance departments. There are many ways in which poor maintenance affects the patient, and the patient, unaccustomed as he is to his new surroundings, may be unable to tell whether such faults and deficiencies can be attributed to poor maintenance or to poor housekeeping. For this reason, it appears that housekeeping and maintenance go hand-in-hand—not only from the standpoint of patient satisfaction and relationship, but also from that of a well cared for and a well maintained physical plant and facilities.

Physical Facilities

Lack of proper facilities, adequate equipment, and sufficient supplies will result in poor work and inefficient use of labour. Some of the physical facilities necessary are: floor supply closets, floor equipment storage space, floor service closets with sinks, proper shelving, hooks, et cetera in closets and storage rooms, adequate and well located offices for the executive housekeeper and her assistants, adequate locker, dressing and rest rooms for employees, rug cleaning room, window shade room, ample and easily accessible furniture and mattress storage rooms, mattress rebuilding and repair shop, upholstery and drapery room. If the housekeeping department is responsible for linen distribution, it will need linen supply rooms, closets and a sewing room. It is essential to have the new employees properly trained in their work. The department should have a demonstration classroom where new employees can be properly trained.

There is a problem whether the housekeeping department should be centralized or decentralized. It will depend to a great extent on the size of the hospital as well as on the number of employees. Centralization provides better supervision, but on the other hand, decentralization saves employees' time.

Careful consideration should be given to the choice of equipment in this department. Simple details such as adequate supplies of pails, mop wringers, mops, dust mops, small folding ladders, et cetera, are too often over-looked. Properly designed and constructed service carts, garbage trucks, and furniture moving trucks, should be obtained to ease the work and lessen the time spent.

It should be mentioned, too, that the cheapest supply will not be the

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bacteriological monitoring leads to Hygienic Environment

Dr. Ruth Kundsin, Sc.D.
Boston, Mass.

EVERY hospitalized patient has a right to a hygienic environment. This is a beautiful but meaningless philosophy. Unless this hygienic environment is described quantitatively, it has as many interpretations as there are people to devise them. What, for instance, makes a floor clean? Is it appearance, sheen, or clutter? When does an environment become unhygienic? When is it a hazard to patients and hospital personnel? These are the problems we have been studying, the questions we have been trying to answer.

Pathogenic organisms in a hospital environment come from two sources—overt infection and carriers. We have traced these bacteria as they travel from the human source on to laundry, clothing, air, floors, window ledges, and from there are spread throughout the hospital. The problem then resolves itself into stopping the spread of these organisms and eradicating or destroying them where they accumulate.

The largest area for bacterial accumulation is the floor, whether it be in the operating room, ward, or corridor. Floor care must be scientific, not haphazard. The ordinary mop and pail technique with any available soap, we have found to be completely inadequate. Bacterial counts have actually been shown to increase as the floor washing progresses. A new floor-flooding technique was developed that used germicidal detergent with excellent results.

The most effective agents for floor flooding are the synthetic phenolics, the iodophors, and the quaternary ammonium compounds. All of these can, without difficulty, lower bacterial counts on floors to single digits per square centimeter. The standard which we have found of practical value for floors in the operating suite is five or fewer organisms per square centimeter; ward floors, ten or fewer organisms per square centimeter. Higher counts after floor washing should not be tolerated.

Bacteriological monitoring, therefore, is the only criterion by which the efficacy of cleaning methods should be ascertained. Constant monitoring not only will reassure one that proper equipment and techniques are being used for cleaning but also will reveal problems as they arise. Despite careful cleaning in one operating room, high counts were persistent. An investigation disclosed that the operating table was bolted down and it was impossible to clean under it. The table was moved; all manner of debris floating in a green slime was revealed. Once this was cleaned and instructions were left for moving the table each time the floor was flooded, the counts became acceptable.

What are the hospital procedures which project organisms into the air and eventually on to the floor? In order to study this, air studies were made over long periods of time in the ward. Volume air samples of bacteria in suspension during normal ward activity were taken by means of the Wells air centrifuge. We found that activity such as bedmaking and dry mopping served to increase the bacteria-carrying particles in the air. We could even tell which patient's bed was being made by the air bacteriology; thus, a patient shedding a particular phage type of staphylococcus aureus contaminates his linen so heavily that any handling of the laundry releases these organisms into the ward air.

These observations of the air bacteriology and how it varies with activity led us to study further those procedures which contribute most bacteria to the environment. In addition to volume air samples, settling plates can be used to determine bacterial fall-out. Both types of cultures were used in front of the five laundry chutes of one hospital. Pulling the laundry from the chute resulted in a tenfold increase in the bacterial population of the air. Emptying rubbish also resulted in doubling the fall-out as well as air-suspended organisms. Apparently, rubbish is not quite so heavily contaminated as the laundry.

(continued on page 94)

From an address presented at the Quebec Hospital Association Convention, February, 1960. The author is on the staff of Peter Bent Brigham Hospital, Boston, Mass.

good design key to

Preventive Maintenance

S. G. Paterson
Toronto, Ont.

IF MECHANICAL equipment when designed and installed is not readily accessible to the maintenance mechanic, inspections may be skipped and repairs delayed. Constant routine inspection of electrical equipment, steam, water and compressed air pipe lines will do much to keep the services operating at their greatest efficiency.

For example, in many laundries the service piping is often located behind brick walls and tilework or hidden by false ceilings. In the event of a break in any of the water or steam lines, considerable damage may be done before repairs are effected.

In these instances, the design has failed to supply proper pipe spaces so that a mechanic can see in an instant any abnormal condition and have it corrected. The merit of a laundry piping layout, with due respect to economic considerations, should be judged on three basic points: (a) its convenience from an operating standpoint; (b) its mechanical design or ability to function properly and efficiently with respect to the mechanical equipment which it serves; and (c) its appearance as a co-ordinated and symmetrical part of the entire plant.

There is a strong tendency on the part of engineers not familiar with laundry operations to underestimate the actual operating conditions. With the development of the automatic controlled washing machines, the problems of controlling vibration, absorbing shock loadings, guiding the movement of pipe resulting from thermal expansions and bracing a pipe line against sway have become critical. Any one of these conditions, if the resulting forces are not controlled, can be sufficiently serious to damage severely a piping system as well as the connected equipment.

When good equipment fails to perform well in an institutional laundry, one very common cause is the lack of proper and adequate piping to that equipment. Design engineers not familiar with laundry operations often underestimate the water piping requirements.

Good washing machines standing idle and waiting to be filled with water represent a large investment loss. A rinse level in a 42" x 84" metal washing machine calls for about 104 imperial gallons. If this is to be all hot water, provision should be made to admit 104 gallons into that one machine within 40 seconds—at the rate of 156 gallons per minute. If two machines were drawing water at the same time to a rinse level, the total would be at the rate of 312 imperial gallons per minute. If three machines are drawing this amount of water at the same time, it will be necessary to provide for a flow at a rate of 486 imperial gallons per minute.

Of course, with manually operated washing machines the probability of this requirement is remote except in a very large laundry. With automatic machines, particularly fully automatic, it is very likely that three machines will be drawing water at the same time. Therefore, water piping calculations should be based on the probable maximum rate of flow per minute to permit maximum use of equipment, supplies and manpower.

Another consideration that the design engineer has to cope with is the occurrence of water hammer. If the velocity of water flowing in a pipe is suddenly diminished, energy is given up by the liquid because of compression of the liquid itself, stretching the pipe walls and frictional resistance to wave propagation. Water hammer is manifested as a series of shocks, sounding like hammer blows, which may have sufficient strength to rupture the pipe or damage connected equipment. It may be caused by the nearly instantaneous or too rapid closing of a valve in the line, or by an equivalent stopping of the flow, such as would take place with the sudden failure of electrical supply to a motor-driven pump. The shock pressure is not concentrated at the valve and if rupture occurs it may take place near the valve simply because it acts there first.

The rise in pressure caused by water hammer may be minimized by the use of relief valves, surge tanks, or air chambers. To obtain the greatest effectiveness, the relief valve or other form of suppressor

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The author is supervisor of mechanical services, the Ontario Department of Health. From a paper given at the Laundry Section of the Ontario Hospital Association Convention, October, 1959.

should be located as close as possible to the source of the disturbance. Suppressors, as a general rule, do not eliminate shock entirely but will reduce it up to 40 per cent. This is often sufficient to remove the clanking sound.

Virtually all laundry drying and flat-work ironing machinery is designed to be operated at steam pressures of 100 pounds per square inch gauge up to 125 p.s.i.g. That is the pressure necessary to permit the equipment to function at its best. Yet a very common laundry problem in hospitals and institutions is the failure to maintain this steam pressure.

At 100 p.s.i.g. the temperature of the steam is 338 degrees F., while the temperature corresponding to 125 p.s.i.g. is 353 degrees F., a difference of 15 degrees. Because of outmoded steam generation equipment, some laundrymen are expected to produce good work with a steam pressure of 80 p.s.i.g. and a steam temperature of 324 degrees F. Drying time for proper moisture removal increases rapidly when steam pressure drops below 100 p.s.i.g. Tests have been conducted showing that at 80 p.s.i.g. the drying time for a shirt cuff was 70.9 per cent greater than at 100 p.s.i.g.

In determining the size of a steam pipe line, one must consider the velocity of the steam, the drop in pressure or friction loss and the weight per cubic foot of steam per minute. It is standard practice to limit the velocity in steam lines that supply laundry machinery requirements up to 6,000 feet per minute. Laundry machinery companies generally rate their machines as requiring an approximate steam consumption in boiler horse power.

When he has the data of the requirements of all machines, the design engineer can readily compute the approximate steam consumption per hour, allowing a margin for future expansion.

If it is desired, accurate measurement of actual loads in an existing plant can be made by the use of such instruments as steam flow meters, water meters and kilowatt-hour meters. When piping systems are being designed or installed, there are many places where the addition of a strainer, steam trap or a by-pass with the necessary installation of gate valves on the steam temperature regulator hook-ups is both useful and very practical. The proper sizing of by-passes and the selection of the right type of valve are, of course, very important.

A strainer with a blow-off should be installed ahead of a pressure reducing station. This protects the regulator and the valves against the ravages of foreign matter in the piping. Washing machines, laundry presses and flat-work ironers should be individually equipped with stop valves so that if one machine is not working, the others can continue on the production line.

Steam and air lines must be properly pitched and dripped between valves and at pockets in the line to get rid of accumulations of water. Steam traps for removing collected drips from drip-pockets, tapped fittings, et cetera, are of numerous types—bucket, float, tilting, thermostatic, and so on. If possible, traps should be placed so that condensation will flow into them by gravity, thus ensuring positive drainage.

It is reasonable to assume that no two steam heated units will have identical condensing rates. Even the slightest difference in rate will cause a difference in steam pressure drops through the units. Here is where the trouble starts. Condensate from each unit may flow into the trap. But what about air and the non-condensables in the system?

A difference in pressure drops, too small to be indicated by an ordinary pressure gauge, will permit backflow of steam from the higher pressure units to the lower pressure units. This backflow of steam may even impede the flow of condensate from the lower pressure unit to the trap. The result is sluggish heating, reduced temperature, reduced output, fuel waste and the increased possibility of corrosion.

Steam traps usually represent a fraction of one per cent of the cost of the equipment they drain. Does it make good sense to lose ten per cent or more of equipment capacity to save a few dollars on traps? It will definitely pay to test traps as often as once a week on a new installation. If test after test shows that all traps are working perfectly, the length of time between tests can be increased.

Group Trapping

Readings with a pyrometer were taken when a flat-work ironer was operating with 100 p.s.i.g. The temperature according to the pressure should be 338 degrees F. When cold, wet material passed over steam chest number 1, the steam condensing rate was high and pressure dropped accordingly. The pressure drop in chest number 2 was not as great and so on down the machine as the material became progressively hotter and drier. Average pressure in the chests was 99.27 pounds and drain header pressure was slightly less, about 99.2 pounds. Under these conditions, we encountered short circuiting in number 1 and 2 chests due to pressure difference. Though condensate from chests drains by cavity, air cannot leave the steam chests countercurrent to the incoming steam.

By using the unit trapping system, that is, a trap for each individual steam chest, temperatures were found to be 20 degrees higher than with group trapping. This is because air is continually removed from each chest into the drain header and cannot get back into any steam chest.

The proper trap correctly installed and of the proper size will contribute to more economical operation of the laundry. Efficient trapping will also minimize the expense of trap maintenance and reduce the frequency of costly shutdowns for repairs. The importance of efficient operation of steam traps cannot be over-emphasized since their failure to function properly will directly affect production and cause considerable loss of money.

The installation and proper maintenance of traps in the compressed air piping system is also of extreme importance. Traps in the air lines are necessary to remove condensed moisture and oil from the piping system. Installing traps in the lowest possible locations will prevent the water and oil from being carried over into the air operated devices where it is very harmful. Additional traps and separators are required at compressors, intercoolers and aftercoolers.

Care of Motors

Modern methods of design and construction have made the electric motor one of the least complicated and most dependable forms of machinery in existence and have thereby made its maintenance comparatively simple. This statement should not, however, be taken to mean that proper maintenance is not important. On the contrary, the motor must be given much care if the best performance and longest life are to be expected. The two

major features, from the standpoint of their effect upon the general performance of the motor, are proper lubrication and care of insulation. These concern the most vital, and probably the most vulnerable, parts of the machine.

Follow these rules and add years to motor life: keep it clean; keep it properly lubricated; keep a regular inspection schedule; don't wait for motors to squeal for lack of oil or smoke from overload, before checking their condition; at all times know the condition of the apparatus; know what loads the apparatus must carry; correct any indication of weak points before the motor fails; and remember that prevention is better than cure.

There are five very important requisites for the operation of a successful laundry machinery maintenance program:

1. it is important to select conscientious and skilled personnel who understand all types of laundry equipment;
2. there must be regularity of inspections and regularity of lubrication;
3. there must be an ample stock of the necessary parts most likely to wear out and need replacement during the operational life of the equipment;
4. good housekeeping is essential to a well maintained plant; and
5. the proper maintenance tools must be supplied if we expect a first class job to be done.

No matter how marvellous your methods, how efficient your equipment, how superb your own system, there is always a better way. Today preventive maintenance is fully established. It often means only regular inspection and cleaning, reserving the big do-overs for longer intervals or clear cut cases of real need. ■

ASEPTIC LINEN

The role of the hospital laundry in fighting cross-infection in linen

Arthur Millard
Agincourt, Ont.

THE control of cross-infection is one of the most pressing and serious problems facing the nation's hospitals today. We in the laundry department, while being mainly responsible for the production of clean sterile linens and to a large extent the controllable life of all linen, find ourselves in the front line of this fight against cross-infection. While cross-infection results from various forms of bacteria, the main offender is the "golden villain" — staphylococcus aureus or commonly referred to as "staph".

The fact that staph is an airborne type of bacteria means that although your linen may be free from infection today, there is every reason to believe that your linen could be "loaded" tomorrow. But where does the laundryman fit into this fight? Even though the effectiveness of your entire laundering procedure for removing pathogenic and non-pathogenic bacteria has been proven time and time again, you can be sure that your department will be considered the number one suspect.

Let us take a look at the various processes used in modern laundering in regard to their efficiency in the removal or destruction of microbial contaminants which might be present.

Washing Procedures

(a) The several changes of water in the formula alone, (an average load will have water changed from eight to ten times) with or without additives, reduce the number of bacteria considerably.

(b) Soap, alkali and detergents dislodge germ-carrying soil and expedite its removal. One authority claims each sudsing operation drops the bacterial count 90 per cent.

(c) If water is held at a temperature above 160 degrees F. for 25 minutes or more, it is just as efficient in destroying bacteria as is the temperature for pasteurizing milk (144 degrees F. for 30 minutes).

(d) Chlorine is used in laundering as a bleaching agent. It is also one of the most effective germicides known to man. One quart of a one per cent solution of sodium hypochlorite per 100 pounds of clothes in a washer amounts to a concentration from 50 to 100 ppm. of available chlorine. (The reason for the variance is the dependence on a known volume of water in the wheel.) Due to the high temperature of the water and the stabilizing effect of the soap and alkalies used with it, the chlorine from the bleach is released slowly and uniformly making it a very effective germicidal agent.

(e) Sudden and extreme changes in pH in the washing formula—from very highly alkaline (up to pH 11.0) to definitely acidic (pH 4.0) in the suds and sour operations—have a decided bearing on the life of the bacteria.

Initially the clothes are subjected to soap and alkaline detergents with a high pH—often up to pH 11.0. This is far beyond the level that ordinary pathogenic organisms can multiply. Later the clothes in

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From a lecture presented at laundry institutes sponsored by the C.H.A. and provincial associations in western Canada in 1960.

The author is laundry field sales manager for the Wyandotte Chemical Corporation, Agincourt, Ont.

the wheel are soured with an acid fluoride sour which brings the clothes down to a pH of 4.5 to 5.0. This degree of acidity is lethal to many vegetative forms of bacteria. In this connection, it is interesting to note that souring to pH 4.5 gives very effective germicidal action compared to the little, if any, obtained by souring to the usual 6.0 to 6.5. It makes one wonder why sour is so often omitted from coloured work and blanket formulae; a very effective germicidal action is thus missed.

Drying and Ironing

(a) Dryers and tumblers run at temperatures from 165 degrees F. upwards. The usual time in a tumbler is about 20 minutes. This temperature is far above the thermal death point of any vegetative micro-organisms which may be present.

(b) In ironing, especially on flat-work ironers or presses, you start out with moist garments, so that the initial temperature is that of steam (212 degrees F.). As the water is quickly evaporated, the garment is subjected to more heat and eventually reaches a temperature well over 300 degrees F.

These temperatures are so high that, even if the washing formulae did not kill all the bacteria, you have an automatic safety valve here in the drying and ironing department. This is more evident as a safety factor when you consider that only white garments receive the benefits of chlorine and high temperatures in washing. In the wash formula, coloured goods end up at a maximum temperature of approximately 140 degrees F. All of them receive the advantage of high temperatures in ironing and drying.

After linen has been cleaned with a modern wash formula, employing proper temperatures, alkalies, soaps, chlorine bleach and acid fluoride sours, and dried at temperatures from 165 to over 300 degrees F., it is considered sterile but not free from the dangers of cross-infection. Staph is an air-borne bacteria—carried by over 50 per cent of all people moving around a hospital—ready to contaminate the sterile linen which may be siting in a linen truck or on a linen shelf.

Fortunately, there has been some interesting and conclusive development which may become one of the main weapons in this fight to control staph in linen. This work centres around the discovery of a certain group of quaternary ammonium compounds which, when applied in the prescribed manner, actually plate the surface of the fibre with a molecular layer of bactericidal agent. This bactericidal agent, after being built up to the right concentration, will kill the staph germ if it happens to fall on the linen, wherever the linen may be.

All quaternaries are not necessarily germicidal; some are hardly germicidal at all. An important factor to consider when purchasing quaternaries is the strength or concentration of the active ingredients. The quaternaries which have proven themselves are the ones where over 90 per cent of their carbon atoms in the alkyl chain fall in the range of C_{12} to C_{16}. This seems to cover a broad range of bacterial species.

The standard method of evaluating the many products being offered to the trade is by the zone of inhibition test. This test will have to be made by the hospital bacteriologist or pathologist. The zone of inhibition test is quite easy to make in a proper laboratory. A petri dish is covered with a jelly like substance called nutrient agar. This agar is contaminated with staph bacteria and a haze forms over the dish caused by the profuse growth of the bacteria. A small piece of fabric from an actual washload is placed in the centre of this culture. If the sample fabric has been treated effectively, it will push back the bacteria and there will be a clear zone of inhibition. A 2 mm. zone is considered excellent protection, but a 1 mm. zone is considered acceptable.

I mentioned concentration of the quaternary as being very important. We have found, through more than three years of research, that it is not possible to get an even distribution of the quaternary if you use a solution that is too concentrated. In a 350 pound load, only a part would receive the quaternary if not diluted properly, and if the pathologist chose a portion for his test that was not treated, he would not find the product good.

We have also learned that the quaternary does not disappear, hence the next washing picks up more. This goes on until the required amount is absorbed. We have found that a minimum of five treatments of a dilute solution is necessary before taking a test. After all the linen has been properly treated, it is possible to cut back about 50 per cent to hold the zone. This obviously reduces the cost of treatment too. Our experience with this product has shown that, by using a 20 per cent active quaternary of the type mentioned above and washing five times before testing, you get good results.

Oiling of linens has been used very successfully to reduce the amount of lint. As lint harbours the deadly staph germ, any reduction of lint is a step in the right direction.

The use of cationic softeners also has been very effective as a lint reducer and a bactericide at the same time. All softeners on the market today do not have this germicidal property.

With regard to blanket washing, I have already mentioned the advantage of using sour on blankets. The National Research Council developed a washing formula for the armed services designed to reduce the incidence of cross-infection. This formula calls for the use of chloramine T in the final rinse. I believe a formula of this type would have real value in producing sterile woollens in hospital laundries and so eliminate yet another source of staph infection.

I also believe that much more attention could be paid to general housekeeping in hospital laundries. By that I mean, not only the routine sweeping and straightening up, but rather a program of disinfection of equipment and work areas. It has been proven that if the cylinders of your washing machines are not clean, the bacteria count goes up very rapidly. If you have one machine that you use continually for washing in low temperatures, such as your wool machine, wash a load of white work in it occasionally to sterilize it. It is always depressing to go into an otherwise efficient laundry and notice clean, sterile linen from the flat-work ironer going into hampers or onto linen trucks that look as if they have not been cleaned for weeks. Why take all the trouble to turn out clean sterile linens only to put them into unlined, unsanitary hampers or linen trucks?

We in the laundry are really in the front line when it comes to fighting cross-infection in our hospitals, and with a little extra care, a little extra work, a little more study of the products available, we can plan an important part in the elimination of this problem. ■

Student nurses in first aid class at the Teaching Hospital of the University College of the West Indies.

HEALTH SERVICES in JAMAICA

A PRIVATE room in one of Jamaica's 21 government operated general hospitals costs less than $2 a day. But Jamaicans stand in line beginning at 6:30 a.m. daily to obtain virtually free medical attention at the hospital of the University College of the West Indies and at Kingston General Hospital and others throughout the island.

Hospital and medical service in the West Indies evolved from the days of slavery when slave owners established medical facilities to care for the ailing. This care, of course, was free to the patient. Many of today's medical facilities are on grounds formerly occupied by the old slave hospitals. As the island's growing population requires more hospital beds, more doctors and nurses and technicians, it seems that a more equitable pay-as-you-go system will develop to replace the ancient slave-day philosophy of free care.

There is concrete evidence that Jamaica's medical profession has made remarkable inroads against a variety of man-killing diseases during recent years. The infant mortality rate has declined from 192 per thousand in 1906 to 67.8 in 1959, while the birth rate has increased from 38.32 to 38.86 during that period.

Malaria, which once was a major health hazard here has been virtually eliminated through an extensive program which involved door-to-door checking of homes in malaria districts to find out whether any occupant was complaining of fever. Those complaining were treated and all homes in the district were sprayed with mosquito killing sprays. The malaria carrying mosquito was known to "rest" on some interior surface after having bitten his victim and before flying away. The insect would be killed while resting, thus breaking up the chain of transmission of the disease.

Yaws, a painful and disfiguring tropical ailment involving open sores caused by a syphilis-like organism, has been virtually eliminated.

An example of the vigor with which Jamaica is attacking its health problem is the establishment of health centres in communities throughout the island.

Under the government's ten year (1957 to 1967) health program, 100 of these centres are to be built. To date, 47 are in operation. They are specially constructed buildings to accommodate a resident nurse, and a visiting doctor and dentist. Strategically located throughout the island, the centres have ambulances on call. Doctors visit twice weekly in rural areas and as frequently as six days weekly in urban areas. The resident nurses are fully qualified to treat minor ailments with simple drugs and to identify problems which require hospitalization or immediate care by a doctor.

In addition to its active care of the ill, the Ministry of Health, in co-operation with various religious, social welfare, and educational agencies is engaged in an extensive health education program. Expectant mothers are advised of infant feeding requirements, health inspectors visit homes to insure that sanitary conditions are being maintained, and special information programs in the fields of tuberculosis detection, venereal disease control, and general health promotion are under way.

The difficulties are many; the handicaps are serious. However, there seems to be little doubt that Jamaica's dedicated medical people will ultimately lead this island up the road to much higher health standards than it has known in the past. ■

university graduates in hospital administration

their distribution in the field

Kenneth S. McLaren
Toronto, Ont.

IN AN earlier article* a study was reported concerning the employment of graduates of the University of Toronto graduate course in hospital administration according to first and present types of position, geographic location, and current numbers serving in various employment categories. Reference was made to the impact of the graduate group upon hospitals, as measured by numbers and percentages of public general hospitals and hospital beds in Canada under the executive control of members of the group in 1959.

To continue the study of the progress of the graduates a number of analyses were performed relating to their movement within and among the basic employment categories comprising the health field. The categories, as defined in the first study, were (a) hospitals, (b) government health services, (c) allied services (hospital associations, medical care plans, private consulting), (d) education and research at university level, and (e) the armed services. The period studied extended from July, 1950, to July, 1960. In addition calculations designed to measure the increasing penetration of the Canadian hospital field by graduates were carried out and, on the basis of the results obtained, estimates of probable future penetration were made.

The numbers of graduates found to be serving in the five employment categories on July 1 of each year of the study period are shown in Table 1. Examination of the table reveals a fairly consistent upward trend within each category, in agreement with the annual increases in the total number. In terms of proportion, hospital appointments have accounted for 67 to 80 per cent of the total; government appointments, nine to 27 per cent; allied services appointments, two to ten per cent; education appointments, one to four per cent; and armed forces appointments, one to eight per cent. Hospital appointments claimed their greatest proportion (80 per cent) in 1956 and their smallest proportion (67 per cent) in 1960. Since 1956 the hospital proportion has tended to decrease. Appointments in allied agencies and in the armed services reached their greatest proportions (ten and eight per cent) in 1960. Apart from the recent decrease in the proportion of hospital appointments, the significant trend in the data of Table 1 is the consistent increase in armed services appointments, commencing in 1955 with the return to the services of the first armed forces graduate. It is to be recognized, however, that some of the graduates who have returned to duty in the armed forces have been appointed to hospital positions therein; such appointments, if counted with civilian hospital appointments, tend to offset the recent decreasing trend in the latter category.

Employment in Hospitals

As set forth in Table 1, executive positions in hospitals have accounted for a considerable majority of the total positions held by graduates throughout the years. Employment in public general and public special hospitals has occurred at three** administrative levels each year: (a) administrator, (b) assistant administrator, and (c) administrative assistant. Table 2 sets forth the distribution of hospital-employed graduates among these three levels throughout the study period.

Numbers employed at the administrator and assistant administrator levels are shown to have increased steadily throughout the period, whereas those at the administrative assistant level reached a maximum at mid-period and since then have declined. Whereas the proportion of administrator-graduates has remained relatively constant over most of the period, that of assistant-administrator graduates has increased during the latter half of the period. Conversely, the proportion of administrative-assistant graduates has shown a marked decline since mid-period. Evidently early graduates who commenced as administrative assistants and remained at that level for a time, gaining experience, have moved to more senior positions in recent

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When this paper was prepared the author was assistant professor, department of hospital administration, School of Hygiene, University of Toronto. As of this month the author has accepted an administrative position at the Cornwall General Hospital. *(See page 20.)*

**Canadian Hospital, March 1960.*

***Infrequently, graduates have entered the hospital field as department heads.*

years. However, their exodus from the junior level has not been matched by an equal influx of new graduates.

The division of hospital-employed graduates between Canada and other countries (principally the United States) is shown for each year of the decade in Table 3. With the exception of the first year the ratios of Canadian to foreign-employed hospital graduates have ranged from 2.0 to 3.0, with a median ratio of 2.4. The latter ratio is typical also of the numerical relationship between the total of Canadian-employed graduates and the total of foreign-employed graduates throughout the period. In recent years, however, the trend has been for Canadian employment to increase; in 1960 the over-all ratio stood at 3.0.

As shown in the table the number of graduates serving in Canadian hospitals reached 55 in 1960 or 48 per cent of the total number. Percentages of the total number who were employed in Canadian hospitals in each year are shown to have ranged from 40 to 60, with the upper limit occurring in the middle of the period. The number of graduates serving in hospitals outside Canada stood at 22.5 in 1960, a 1.5 decrease from the previous year. For this group the range of percentages of the total was 19 to 30, the upper limit having occurred at the beginning of the period. For the 11-year period the rates of increase in the numbers serving in Canadian hospitals and in hospitals outside Canada were 4.4 and 2.0, respectively. As suggested earlier, the downward trend in the percentage of graduates employed in Canadian hospitals from 1956 to the present may be accounted for in large part in terms of candidates coming from and returning to the armed services throughout this period, and who were classed in the table under the heading, allied appointments—Canada.

Upon subtracting the numbers of graduates employed in Canadian public special hospitals from the Canadian hospital-employed numbers in Table 3 and relating the differences to Canadian public general hospital numbers, 100 beds and over, it was possible to establish trends in the employment by the latter type of hospital of: (a) graduates, and (b) administrator-graduates. These calculations were possible only for the period, 1954 to 1960 inclusive, for which hos-

Table 1

Annual Accumulations of Numbers of Graduates in Five Employment Categories, 1950-1960

Year	Hospitals	Government health services	Allied agencies	Education & research	Armed services	Total
1950	10.5*	4	x	0.5	x	15
1951	19.5	4	0.5	1	x	25
1952	26.5	6	2.5	1	x	36
1953	33.5	7	3.5	1	x	45
1954	41	7	4.5	0.5	x	53
1955	51	7	4	1	1	64
1956	60	7	4.5	1.5	2	75
1957	62.5	11	5.5	1	3	83
1958	66.5	12	8.5	3	4	94
1959	76	9	7.5	4.5	6	103
1960	77.5	13	11	4.5	9	115

* Half-units indicate the services of an individual in two employment categories simultaneously.

Table 2

Numbers and Approximate Percentages of Graduates Employed at Three Administrative Levels in Hospitals, 1950-1960

Year	Administrator		Assistant administrator		Administrative assistant		Totals
	No.	%	No.	%	No.	%	
1950	1	10	6.5	60	3	30	10.5
1951	8	40	7.5	40	4	20	19.5
1952	13	50	5.5	21	8	29	26.5
1953	19	57	8.5	25	6	18	33.5
1954	24	58	9	22	8	20	41
1955	27	54	12	23	12	27	51
1956	32	53	16	27	12	20	60
1957	34	54	20.5	33	8	13	62.5
1958	36	54	23.5	35	7	11	66.5
1959	43.5	57	26.5	35	6	8	76
1960	45	58	28.5	37	4	5	77.5

Table 3

Numbers and Approximate Percentages of Graduates in Hospital and Allied Positions Inside and Outside Canada, 1950-1960

Year	Hospital Appointments				Allied Appointments				Total appointments
	Canada		Foreign		Canada		Foreign		
	No.	%	No.	%	No.	%	No.	%	
1950	6	40	4.5	30	3	20	1.5	10	15
1951	13	52	6.5	26	4	16	1.5	6	25
1952	19	53	7.5	21	5.5	15	4	11	36
1953	25	56	8.5	19	7	15	4.5	10	45
1954	29	55	12	22	8	15	4	8	53
1955	37	57	14	22	9	14	4	7	64
1956	45	60	15	20	11	15	4	5	75
1957	44.5	54	18	22	14.5	17	6	7	83
1958	46.5	50	20	21	20.5	22	7	7	94
1959	52	51	24	23	23	22	4	4	103
1960	55	48	22.5	20	32	28	5.5	4	115

pital sizes and numbers data were available. Table 4 contains the basic data and the results of the trend calculations.

As the percentages in the table indicate, the proportion of hospitals, 100 beds and over, in Canada, employing graduates as administrators has increased steadily, with the exception of 1958. On the other hand the changes in the proportion of hospitals employing graduates at any executive level are shown to have been less consistent, though suggesting nonetheless an upward trend. Rates of increase obtained from the lines of best fit for the two series were calculated to be 0.71 per cent per year for hospitals employing administrator-graduates and 0.58 per cent per year for hospitals employing graduates. The fact that the percentage of employing-hospitals has increased by approximately one half while hospital-employed graduates have doubled over the six-year period is due in part to an increasing number of hospitals in the size-class and in part to a sense of kinship in the graduate group. That the latter factor has come to have some significance in the employment of graduates in recent years is suggested by the following statistics showing the coupling of graduates in hospitals. From 1950 to 1956 there were no hospitals employing more than one graduate, in 1956 there was one, in 1957 two, in 1958 four, and in 1959 and 1960 five.

While it is acknowledged that the reliability of trends derived from data covering only a six-year period is limited, the exterpolation of the trend lines for employing-hospitals indicates that the continuation of past and present training and employment conditions would produce approximately 22 per cent and 28 per cent of Canadian hospitals with 100 beds and more employing graduates in 1970 and 1980, respectively, and 18 per cent and 25 per cent employing graduates as administrators in the same years. Because the trend calculations did not consider the University of Montreal which graduated its first group in 1958, graduates of American universities serving in Canada, and Canadian hospitals employing these graduates, the above percentages for employing-hospitals are to some extent underestimated.

The Employment in Allied Positions

As shown in Table 1, in addition to the principal employment category, general and special hospitals, those of government, allied agencies, and education and research have claimed fairly consistent percentages of the total number of graduates since the early years of the program. Table 3 groups those graduates employed in the latter three categories and in the armed services under the single heading, allied appointments; and, as in the case of hospital-employed graduates discussed above, divides the numbers for each year into two groups —those serving in Canada and those serving in other countries.

Canadian allied appointments are shown to have reached 32 in 1960, representing 28 per cent of the total number for that year. The trend in numbers so employed has been consistently upward throughout the period, the rate of increase having been 2.6 appointments per year. Percentages of the total numbers for each year

(concluded on page 80)

Table 4

Graduates and Administrator-graduates Employed in Canadian Public General Hospitals (100 Beds and Over), and Percentage Trends, 1954-1960

Year	No. of graduates employed*	No. of administrator graduates employed	No. of hospitals	Percentage of hospitals employing one or more graduates	Percentage of hospitals employing administrator graduates
1954	23	13	205	11.2	6.3
1955	30	16	218	13.8	7.3
1956	37	20	219	16.4	9.1
1957	36.5	21	220	15.7	9.5
1958	35.5	21	225	14.0	9.3
1959	42.0	23.5	242	15.3	9.7
1960	44.0	27.5	244	16.4	11.3

* Since 1956 there have been hospitals employing more than one graduate. Accordingly, hospital percentages calculations (column 5) were performed using appropriately reduced graduate numbers.

Table 5

Numbers and Percentages of Employment Changes of Graduates in the Health Field, According to Direction of Movement, 1949 to 1960

Type of movement	Number of changes	Percentage of total changes
Hospital to hospital	66	60.0
Government to hospital	13	11.7
Hospital to government	12	10.8
Hospital to allied agency	4	3.6
Government to allied agency	3	2.7
Allied agency to hospital	3	2.7
Hospital to education	2	1.8
Allied agency to education	2	1.8
Education to hospital	2	1.8
Allied agency to allied agency	2	1.8
Government to education	1	0.9
Education to allied agency	1	0.9
Total	111	100.5

Table 6

Distribution of Graduates Among Single Employment Categories and Combinations of Employment Categories

Types of employment	Number of graduates	Percentages of total
Hospitals only	51	58.6
Hospitals, government	18	20.7
Hospitals, allied agencies	4	4.6
Hospitals, allied agencies, government	3	3.4
Allied agency, government	3	3.4
Government only	3	3.4
Allied agency only	1	
Education only	1	
Hospitals, education	1	5.8
Allied agency, education	1	
Education, government	1	
Total	87	99.9

A New Course in Nursing Unit Administration

Kathleen Ruane,
Toronto, Ont.

A UNIQUE opportunity for nurses to improve their management skills by means of a home study program is being offered in September, 1961. It is the Extension Course in Nursing Unit Administration, jointly sponsored by the Canadian Nurses' Association and the Canadian Hospital Association. The W. K. Kellogg Foundation has given financial support to the program for a four-year period.

This course has been prepared to meet the needs of nurses who wish to improve their administrative skills but who, for one reason or another, are unable to attend a university. Head nurses, assistant head nurses, supervisors and directors of nurses in small hospitals who lack previous formal preparation in nursing service are eligible for enrolment.

The main part of the course content will be given by correspondence, a method used for several years in business, technical and academic fields. Combined with the home study section of the course will be two five day intramural sessions or workshops. It is felt that a "meeting of minds", where active discussion and participation occur, is highly conducive to learning in adult education. The first workshop in September will introduce the students to the program and provide for an overall view of the course content. Subjects such as communication; social changes affecting nursing; qualities of leadership and study habits will be presented through films, group discussions and outstanding speakers. The final workshop in May will be concerned with budgeting, human relations in personnel management and problem areas presented by the student. In order to minimize travelling time and expense, the workshops will be held on a regional basis, *e.g.*, two in the Western provinces, three in Ontario and Quebec and one in the Atlantic provinces.

The first lesson will be mailed in October following the initial workshop. The student will receive a total of thirteen lessons at two-week intervals until the middle of April. The lessons will present topics of vital importance to the nurse who is responsible for the care of the patients in her unit. The fundamentals of administration, planning, organizing, coordinating, directing, communicating and controlling will be considered. An examination of the nursing service department with regard to its structure and function will help the student to recognize relationships and lines of communication existing within the hospital. How does the head nurse assign staff? What use is made of reports, rounds and workplans? How do physical facilities, equipment of supplies affect the nursing care of the patient? These are questions which are discussed in lessons on the administration of the nursing unit. Evaluation of patient care; supervision of personnel; in-service education; the legal aspects of nursing; the organization and control of hospitals; and philosophy of patient care, will be studied.

Attached to each lesson will be reprints of pertinent journal articles, a list of reference reading to amplify the lesson, and an assignment. The reference reading will be assigned from text books purchased by the student. Each assignment or exercise will be planned to help the student relate the principles learned through the lesson material and reference reading to the actual job situation. The assignment will be carefully marked by an instructor. If the student appears to have difficulty with a particular phase of the course, the instructor will provide assistance by adding appropriate comments when returning the exercise to the student.

The Extension Course in Nursing Unit Administration, through intramural and extramural sessions, attempts to achieve three broad objectives. These objectives are to assist the head nurse to:

1. Improve patient care through the application of basic principles of administration to the management of a nursing unit.
2. Develop an understanding of the administrative function inherent in her position.
3. Assist the head nurse to coordinate effectively the service of the nursing unit with the services of other departments through improved methods of organization and communication.

It is evident that a course of this nature has limitations in comparison to university courses. It is not a substitute for university study; rather, it is an on-the-job training course designed to improve the nurse's skill in the application of administrative principles to the management of the nursing unit. A better understanding of the head nurse's function and responsibility should lead to improvement in service to the patient, and to greater job satisfaction for the nurse.

The cost of the course is $100.00 for tuition which is payable not later than July 15, 1961; $20.00 to $25.00 for text books, and the expense of travelling to and from the workshop plus maintenance during the two five day periods. A calendar containing additional information is available to prospective students on request.

A statement of confirmation signed by the director of the course will be sent to the student on successful completion of both the intramural and extramural sessions.

Applications for enrolment should be made not later than June 1st, 1961. Applications and enquiries regarding the course should be directed to: Director, Extension Course in Nursing Unit Administration, 25 Imperial Street, Toronto 7, Ontario. ■

MEAT RESEARCH

Why the quality in meat is a problem for the producer, purchaser and scientific investigator.

Mabel Sanderson, Ph.D.
Guelph, Ont.

MEAT is the most prized of our foods and one which most Canadians would resist giving up. It is our most expensive menu item. Therefore, the quality of the meat produced, its processing, preparation and cooking become of paramount importance not only to a homemaker but also to any food service unit in a hospital, hotel, restaurant or institution.

Nutritionally, meat is an important food. Lean cooked beef may run as high as 32 per cent protein. This protein is of high quality for human utilization, sometimes called grade A or complete protein. The fat content of lean cooked beef varies from as low as 8 per cent to a more nearly average amount of 16 per cent or higher. Meat contributes worthwhile quantities of minerals, including phosphorous, magnesium and iron, and of the B-vitamins such as thiamine, riboflavin, nicotinic acid, pantothenic acid, pyridoxine and B_{12} to our diet.

The eating quality of meat is a combination of tenderness, juiciness and flavour. These may go hand in hand but are not necessarily associated in a desirable degree. Meat may be very tender and at the same time have a dry feeling in the mouth; or it may be very juicy and also very tough.

Research on meat quality has been carried on quite extensively since the end of the 19th century but the basic factor affecting its desirability remains a mystery.

Microscopic studies of meat tissue have revealed the basic structure of meat muscle, showing clearly two gross divisions—muscle fiber and connective tissue. For a time, the latter was thought to be responsible, solely, for the toughness of meat. There are two types of connective tissue, the yellow as found in tendons, and the white which surrounds muscles and its subdivisions and hence gives meat its characteristic "grain" in cross-section. This white tissue is the one of importance to our problem. It can be hydrolysed by heat, hence those parts of a carcass which contain much connective tissue, such as shoulder or shank parts, are commonly cooked longer, usually in the presence of moisture to permit the connective tissue to break down and form a tender jelly-like material. Where the membranes are thinner a shorter cooking time will suffice.

Many studies have tried to relate degree of tenderness to the amount of connective tissue. A chemical test for the estimation of hydroxyproline, which parallels the amount of connective tissue present, was devised and used.

It became apparent that even though connective tissue was tenderized to the point where the meat fibers fell apart, the meat fibers themselves were often very tough and stringy. Indeed, cooking has a dual result: the meat fibers, which in coarsely grained meat may be clearly seen in bundles or strings, become firmer and tougher under higher cooking temperature, and at the same time the connective tissue softens. The major aim of meat research is to insure a cooked product having soft connective tissue and a tender fiber.

Major studies have provided authority for the following statements concerning beef.

Age of an animal may have some bearing on the degree of tenderness, since as age increases, tenderness of the meat tends to decrease, but there is great variation at any given age.

Exercise increases the tenderness of meat. This was true when similar muscles from exercised steers were compared with muscles from similar steers which had been confined. However, on any one carcass, the muscles which are the most exercised are the least tender, indicating that there must be some inherent difference between muscles intended for much activity and those which are intended for little activity. The inherent difference in the muscle fiber which is responsible is being sought.

Differences in collagenous and elastic fiber content and the number of such fibers have been investigated. Muscle fibers have been compared for extensibility and tensile strength. So far, no momentous results have been revealed.

Carcass grade, the criteria most used in the marketing of meat has not been found to be reliable. A trend toward better quality in higher grade meat has been shown but tender meat has not been confined to the higher grades. Even the soft oft-referred-to marbling of fat in meat has not borne up to expectations that it would improve meat quality.

Inheritance and level of nutrition have been shown to have some part to play in improving meat quality.

Relatively recent studies have emphasized the possibility that the amount of water in meat muscle and the manner in which the water is held by the meat may be of importance. The inference being that a higher water binding capacity of muscle is associated with greater juiciness and tenderness of meat.

Treatment of the carcass after slaughter is known to be important. Aging, or ripening, is an old method for improving the eating quality of meat. Muscles must be left intact on the carcass for good tendering results. An aging period

(concluded on page 104)

The author is on the staff of Macdonald Institute, Ontario Agricultural College, Guelph, Ont.

Food Service
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Canadian Dietetic Association

educational program in

Administration of Small Hospitals

C. A. Meilicke,
B.Com., D.H.A.,
Saskatoon, Sask.

IN SEPTEMBER of 1960, an important development in the Canadian health field came about when a correspondence program in the administration of small hospitals began its first year of operation. The start of this course marked an educational development unique on this continent. It is a long-term, formal educational program aimed at the specific needs of executive personnel in hospitals with fewer than 50 beds. The program is being operated as a pilot project and, should it prove successful, it may well be duplicated in other provinces, thus becoming a small but important milestone on the road to improved health care.

The initial impetus for the program came from a study aimed at a different but related problem. Delegates to the 1954 convention of the Saskatchewan Hospital Association had resolved that a committee investigate ways and means of implementing certification legislation for the executive officers of hospitals in that province. Such legislation was considered a first step toward maintaining a high quality of hospital administrative practice. Part of the committee report handed down in 1955 suggested that, although primary and secondary categories of certification could be logically equated with the post-graduate diploma in hospital administration and the Canadian Hospital Association's program in hospital organization and management, there was a need for some well defined set of tertiary standards which would be more practical for the executives of small hospitals. It was implied that the tertiary standards should not be a "back door" to certification for untrained personnel but rather that criteria should be established which would represent considerable tangible achievement. The committee borrowed an idea from the Saskatchewan Department of Municipal Affairs in suggesting the establishment of a correspondence program similar to that which the local government administrators in the province had had access to for years. This idea completely eclipsed the original proposals for certification legislation.

In sanctioning further action on the problem, the convention delegates had in mind, of course, the large number of hospitals in Saskatchewan with fewer than 50 beds. There was clearly a large potential student body for the proposed program. The personnel in these hospitals, because of their lack of formal training, their lack of financial resources and the limited departmentalization of their hos-

(continued on page 86)

The author is supervisor, correspondence course in Hospital Administration; and instructor in Institutional Administration at the College of Commerce of the University of Saskatchewan, Saskatoon.

An Institute in Progress at Humboldt, Sask. (See above.)

From left to right: C. Elliott, co-ordinator, Quill Plains Regional Hospital Council, Humboldt; I. L. McLean, administrator, Wadena Union Hospital, Wadena; R. Kiefer, secretary-manager, Watson Union Hospital, Watson; A. Pearson, secretary-treasurer and manager, Kelvington Union Hospital, Kelvington; S. Bjornson, administrator, Whitewood-Moosomin Union Hospital, Moosomin; Mrs. S. V. Moore, secretary-manager, Wynyard Union Hospital, Wynyard; and R. Dagenais, nursing consultant, Quill Plains Regional Hospital Council, Humboldt.

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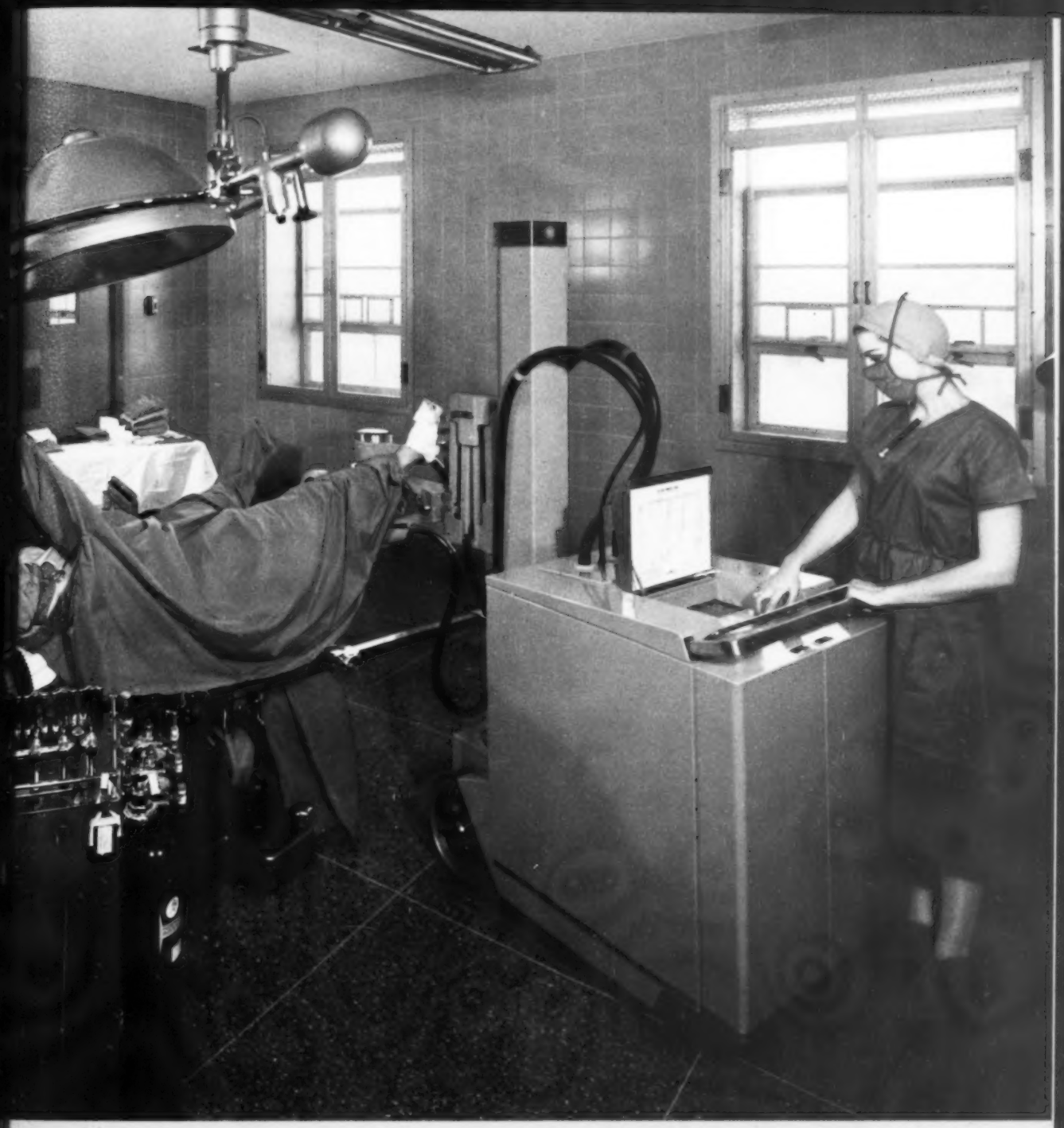

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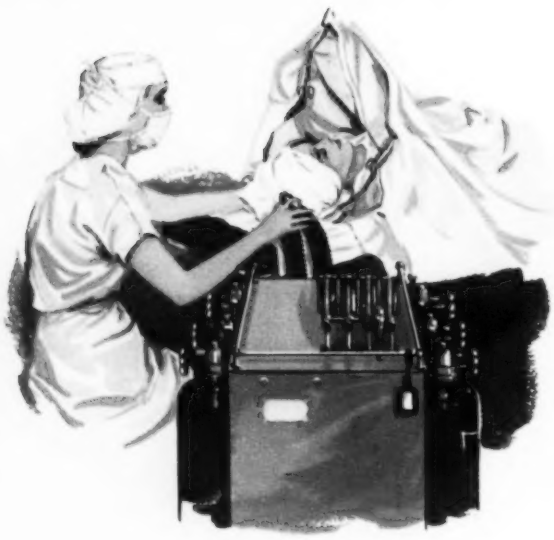

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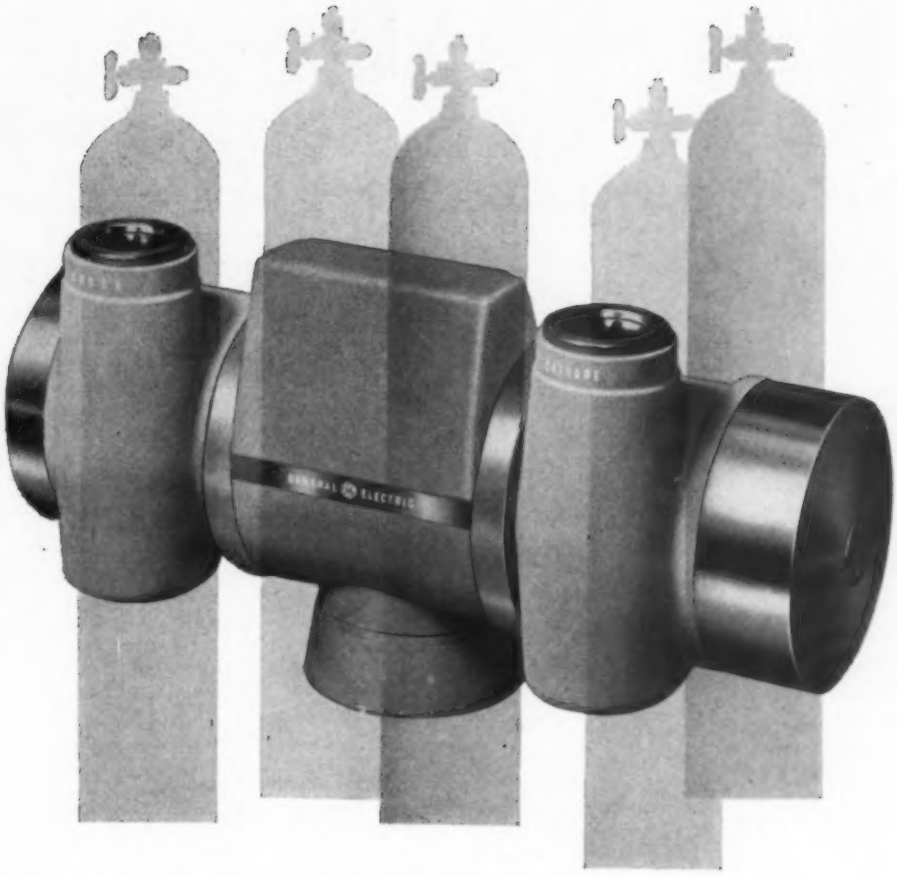

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How Housekeeping Can Aid Nursing

Elizabeth Hannigan,
Hamilton, Ont.

AS a result of the article "How Housekeeping Helps Save Nursing Hours", published in *Canadian Hospital*, May 1959, many hospitals and individuals became interested enough to request further details on the subject of hospital housekeeping. This has encouraged me to write again on our efforts, here at St. Joseph's Hospital, to relieve nurses of any tasks that may well be carried out by non-professional personnel. You may be interested to learn about one other project in our isolation cleaning program.

Cleaning Isolation Bed Area in a General Ward

In all hospitals, as in ours, the necessity arises whereby a patient has to be transferred from a general ward to the isolation ward. The question is, how far should we go in our cleaning of the bed area that the patient has vacated? If it has been a six- or twelve-bed ward, should the entire ward be wall washed or the bed area only? If we decide to wall wash the entire ward, the remaining patients are bound to suffer some degree of discomfort—beds are pushed about to make way for scaffold, wall washing machine, et cetera. Since the patient has occupied this area for the shortest possible time after the necessity for his isolation was discovered, it is not incumbent that this area be wall washed. We have now drawn up a standard of procedure to cover this situation.

Step 1—Take isolation wagon to bed area. Pull bed curtains around the bed. Place unit, basins, utensils, et cetera, in garbage can provided for this purpose. Pour over this, a generous amount of germicidal solution and replace lid. The nurse should do likewise when placing medication glasses, thermometer, containers, et cetera in yellow can provided for this purpose.

Step 2—Strip bed and place linen and blankets in soiled isolation linen bag. If bed is adjacent to a window, remove the drapes and place in bag. Soak pins for drapes in can with solution. Remove window blind. Disinfect mattress thoroughly, label with room and bed number and have male cleaner remove it to airing space. Using germicidal solution, clean bed springs and frames, damp wipe window blind, bedside table, dresser, chair, footstool, window ledges and isolation table. Now remove bed curtains and place in bag with soiled linen. Wipe off bed curtain rails. Wash lid and outside of garbage and utensil cans. When removing bed linen, drapes and bed curtains to place in soiled linen bag, please do so carefully, and gently.

Step 3 — Remove wagon. After labelling soiled linen and dry garbage cans as "Isolation", have them removed for collection. Return and dry off utensils, et cetera as removed from can. (We have been assured that 20 minutes soaking is the length of time that it takes for disinfection). Take garbage can to nearest utility or washroom and slowly pour out germicidal solution. At the same time using solution to again wash the can on inside, outside and bottom. Now remove can and isolation table to storage room. Have the male cleaner masked and gowned, soak floor area with water and equal part germicidal solution, using of course the pail and mop for isolation areas only and clearly labelled thus. When the floor is dry, you may replace clean bed curtains.

Step 4 — On the following day, have mattress returned and make up bed. Replace blind and hang clean drapes. Wash furniture over with white soap and polish with soft dusters. The bed and area is now ready for the next patient.

Messenger Service

In September, 1960, housekeeping instituted a new service in their progressive plan to provide aid wherever necessary. For some time there had been veiled murmurings of dissatisfaction from nursing that too much of their time was being spent in delivering and picking up slips to and from other departments. Upon investigation, their complaints seemed quite bona fide, so we decided to introduce the services of a "messenger". Obviously, the chief qualifications for such a position would be a young person with the ability to cover a large area in the shortest possible time. As it happened, we had such a young lady on our housekeeping staff. She was equipped with a satchel in which to carry her slips and forms and also a brooch of identification. She was then introduced to all nursing supervisors and senior nurses. Her advent was greeted enthusiastically by all. Her day begins at 8 a.m. and ends at 4.30 p.m. with half an hour for lunch period, Monday through Friday.

She begins her travels at the "top of the house" calling at every nurses' station, on her way. She then delivers all the slips and forms to the various departments—laboratory, pharmacy, admitting, main office, central service, housekeeping office, chief engineer's office, general stores. Since this service began, it has been requested by other departments—in fact, in the very near future, it seems as if we may find it necessary to introduce a second messenger. ■

The author is executive housekeeper, St. Joseph's Hospital, Hamilton, Ont.

"The Bedside Reporter"

Patients at the Women's College Hospital, Toronto, Ont., receive a daily newsletter containing the latest news of national and local interest. "The Bedside Reporter" is prepared by the hospital with the aid of a local radio station.

Each morning the station sends the hospital a typewritten stencil of the most interesting news items, avoiding any which might be upsetting to the patients. The hospital usually adds a message of its own, and then prints the newsletter on its duplicating equipment, using news sheets which the station provides ahead of time.

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WATER

- its effects on quality
- hardness and other impurities

M. D. Dawes
Toronto, Ont.

LONG before man heard the word detergent and concerned himself at all with soap, alkali, synthetics, bleach, et cetera, he relied upon a product called water to remove soil from his body and from the garments he wore. Water was the best universal solvent over 2,000 years ago and, for that matter, still is today. No other product known to chemistry has the power to dissolve as many substances as has water. In laundries we make great use of this dissolving power. We do more. We augment it with soaps or detergents. By adding these, we give water additional power to wet out, loosen and suspend soil.

It is exactly in this process of adding soap to water to increase its effectiveness that we run into difficulties. Although water is the best universal solvent, it has in its life cycle often absorbed mineral salts which react adversely with soap. Water which is not absolutely soft will start to destroy soap the moment that we add it, even though our principal aim be to improve the detergent power of that water.

In order to learn the why and the how of this destructive reaction, we must learn the nature of the mineral salts that to a lesser or greater degree are present in our water supplies. To do this, we must first examine the natural cycle of water.

Water passes through a continuous cycle beginning and ending with the ocean. The heat of the sun begins the whole cycle by vapourizing large quantities of water. A simple example may remind us how this happens. If you pour a small quantity of water into a saucer and leave it exposed to the air, what happens? It will completely evaporate if left long enough. If we should place it directly in the sun's rays, it will disappear even more rapidly.

Moisture thus drawn into the air forms our clouds which are carried in various directions as air masses move and respond to the formation of high and low pressure areas. Precipitation in the form of rain or snow occurs when cool currents of air react on the clouds. Water that falls to the ground is very soft, almost like distilled water. Through the streams, springs, rivers and lakes, the water finds its way back to the ocean. At this stage, that is, the river stage, we draw off the water we need for our own use in the laundry and elsewhere. It is during its traverse from air to land and from land to supply that our water picks up impurities by reason of its excellent dissolving power. As it falls through the air it comes into contact with carbon dioxide and this imparts to the water a slight acidity. This acidity becomes important when the water travels on or under the soil and comes in contact with rock or limestone. As it does this, it dissolves calcium and magnesium salts to a greater or lesser extent.

The quality and the hardness of water will vary greatly from region to region according to the type of terrain through which it passes. On the west coast of Canada, water is very soft and very seldom exceeds a half a grain of hardness. Yet in the prairie provinces, one thousand to fifteen hundred miles due East, the water is extremely hard and has been known to reach 50 to 60 grains of hardness. It is important to remember this fact. Further, quality and hardness will vary from time to time in the same area. Water during a time of spring thaw will have a different characteristic from that supplied in the summer. In mining areas, water impurities will vary greatly in intensity from time to time.

From all this you can see that no matter how well the local water authority may purify the water for drinking purposes, it may still be unsuitable for laundry purposes. The purity of wash water is determined by the magnesium and calcium salt content. In all my experience working in laundries across Canada, the most common difficulty encountered is that of hard water. We have said that the calcium and magnesium salts of hard water react with soap to produce undesirable compounds. In other words, when a soap is added to water that contains calcium and magnesium salts, a grey-white, insoluble, sticky scum is

(concluded on page 108)

The author is western divisional field manager of The Procter and Gamble Company of Canada, Limited.

This is the first of a series of articles by Mr. Dawes to appear in consecutive issues of this journal.

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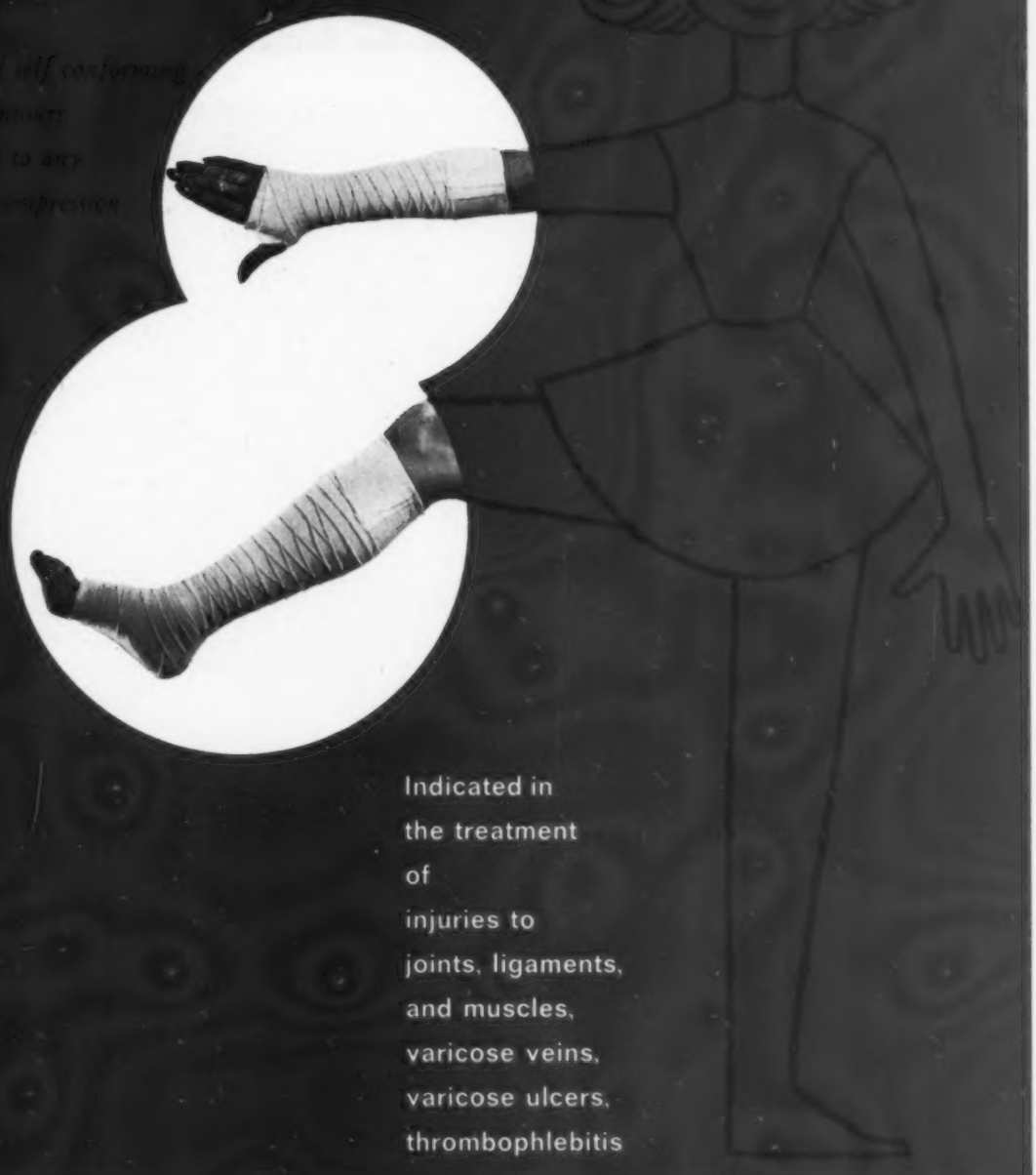

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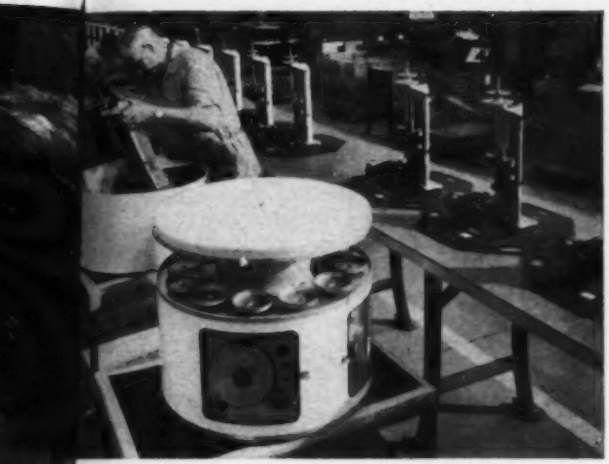

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First Institute on Volunteer Services

A CAPACITY registration of 100 attended the first three-day Institute on Volunteer Services in Hospitals, at the Park Plaza Hotel, Toronto, from March 20 to 22. The Institute, jointly sponsored by the Ontario Hospital Association and Women's Hospital Auxiliaries Association, was designed to provide information on all facets of in-hospital volunteer service. It was attended by hospital administrators, staff members and officers of hospital auxiliaries.

Sessions with audience participation were guided by special guest Dr. Robert H. Schacht, assistant director, Informal Instructional Services, University of Wisconsin. The following instructional conferences were held: "Interview and Placement of Volunteers", chaired by Mrs. Vivien Ross, director of volunteers, Royal Victoria Hospital, Montreal, and president, Association of Directors of Volunteer Services in Hospitals; "Orientation and Training", chaired by Marilyn Silver, director, volunteer services department, New Mount Sinai Hospital, Toronto; "Job Description, Records and Manuals", chaired by Eleanor Hughes, director of volunteers, Princess Margaret Hospital, Toronto; and "Teen-age Volunteers", chaired by Mrs. Robert H. Larson, director of volunteers, Grant Hospital, Chicago, and president, Council of Directors of Hospital Volunteers of Chicago.

Throughout the three-day session, principles of in-hospital volunteer work were examined. It was felt that, while volunteers in Ontario hospitals are contributing much at present, the need for enlarged, well organized services in the future will make itself felt and our volunteers must be prepared. The consensus was that volunteers are to be considered as part of the hospital team and not as gift shop attendants. They should continue to supplement the work of paid employees and help to provide much of the "extra" patient care which a busy staff is unable to do.

It was agreed that it is necessary to place the volunteer in the job best suited to his or her particular talents. It was also emphasized that more hospitals should conduct in-service volunteer training programs, and for sizeable volunteer programs, a full-time, paid director of volunteers was desirable. For smaller hospitals, the auxiliary should appoint one person who would co-ordinate all the volunteer activities.

The theme of good public relations was apparent throughout the meeting. It was stressed that every volunteer should be well informed in order to be able to convey clearly the hospital story to the community.

Mrs. W. P. Telford, president of the W.H.A.A., summed up the whole concept of volunteer service when she pointed out that the trend within the last ten years has shifted from the so-called lady bountiful volunteer — the upper-class woman with time on her hands who did charitable work to keep her from being bored, to the citizen volunteer — the housewife with a genuine desire to help. ■

Travelling Carts for Patients

The Women's Auxiliary of the General Hospital in Sault Ste. Marie, Ont., operate a gift shop on wheels. A travelling cart for the convenience of the patients, visits all departments of the hospital three afternoons a week. A few of the items carried in this popular service are cigarettes, candy, cosmetics, knitted goods, writing paper, stamps and magazines.

Hobby Therapy is a Popular Service

One popular service offered to patients by the Women's Auxiliary of the Saskatoon City Hospital, Saskatoon, Sask., is that of hobby therapy. The committee responsible for this service reported a busy year for the hobby therapist, who is in the wards five or six days a week to give instruction in many types of handicrafts. Under his direction many patients, referred by their attending doctor, have been encouraged to take an interest in one or more crafts and some excellent work has resulted—quite apart from the therapeutic value to the patient. Entries of copper and leather work in the Saskatoon Industrial Exhibition brought many prizes to the exhibitors.

Social Services Stressed

The Women's Auxiliary of the Toronto General Hospital, Toronto, Ont., lays great stress on social service work—problem cases, general relief, taxi bills, clinical investigation fund (pays expenses of bringing to hospital any patient who would not otherwise need hospitalization—diagnostic cases and follow-ups) and interpreters in ten languages. A new project is the beginning of a record library for temporarily blind persons. The project of buying meal tickets from the Salvation Army Hostel to give to needy patients when they leave will possibly expand as well.

Photographs to Buy New Equipment

Members of the Women's Auxiliary to the Lions Gate Hospital, Vancouver, B.C., have been learning to scrub and sterilize to enable them to enter the hospital ward to take pictures of newborn babies. There will be approximately 25 members participating in this volunteer program, and the proceeds from this new service will be used to purchase new equipment and supplies for the nursery.

New Patient Service at St. Joseph's

A new service to hospital patients was started not long ago by the Ladies' Auxiliary to St. Joseph's Hospital, Peterborough, Ont. It is called "personal assistance". This service is intended mainly for people from out of the city who are in the hospital, and the idea is to visit them, offer to write letters and help in any way to bring them cheer. Visits are made at two to three week intervals and are greatly appreciated by the patients. Members of the committee stress that this service needs assistance of floor supervisors and nurses in finding out who may need help.

- The first annual general meeting of the Ladies' Auxiliary of the Saguenay General Hospital, Arvida, Que., was held in February. The constitution was passed, and the first executive for the organization, which now has 64 members, was elected.

- Members of the Auxiliary to Lady Minto Hospital, Ashcroft, B.C., spent during 1960, 293 hours in mending and sewing. The British Columbia Health Insurance Services credits the hospital for such work at the rate of 75 cents an hour, thus, in this part of the work alone the auxiliary made a contribution of $219.75 to the hospital during the past year.

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The Hospital Engineer — as member of the management team

A summary of the evaluation forms submitted by those attending the Engineering Institute and Workshop, conducted by the Engineer's Section, Ontario Hospital Association, held in Toronto, April 10-12, 1961.

William J. Longeway
Toronto, Ont.

THOUGH it is widely accepted that the engineer is a member of the hospital management team, too few men regularly compare their qualifications with management's requirements, and some do not adjust themselves as they climb the ladder of responsibility.

John T. Law, director, The Toronto Hospital for Sick Children, offered the above as a challenge, rather than criticism to the Engineers' Section, Ontario Hospital Association. In his address, evaluated as the best item of the entire three-day program, Mr. Law stressed the responsibility of the engineer in maintaining the hospital buildings, plant and equipment, and supervising alterations and installation of new equipment in such a way that the operation of the hospital is geared to the needs of every department, of the patient, and of the public.

"Whether you attained your position through continued advancement in your present plant, or moved in after extensive experience in other hospitals, you can probably improve your operations by reviewing some of the fundamentals of good management," Mr. Law said. He also developed some cardinal conditions that every executive hospital engineer should include in his self-analysis examination. Chief among these were:

- Accept criticism gracefully; do not try to shift the blame onto some other person.
- Keep track of your performance.
- Learn to accept changes.
- Don't make promises beyond your ability to produce.
- Don't leave your chief waiting for an answer; if you don't know, say so.
- Learn how to find answers that you may not have immediately available.
- Study to grow as an individual with your institution.
- Recognize when being one of the boys can be helpful or harmful.
- Investigate the difference between long term and short term economy.
- Plan the complete program of work, both for yourself and your staff.
- Know your present job before you say you can handle a tougher one.

Understand your limitations. Being the boss can bring rich satisfaction, but there is worry and failure waiting for the one who lacks the qualifications to do the job.

Under the chairmanship of Gordon Stephenson, this year's program was the most elaborate ever offered to hospital engineers of Ontario. As part of the educational program of the section, the objective was to stimulate new thinking, promote discussion of current problems, and investigate new trends in the field of hospital engineering. The common theme was the development of the relationship of the engineering division with other departments in the interest of high standards of patient care.

It was a fast moving program which required accurate scheduling from the minute that Stanley W. Martin, executive secretary-treasurer, Ontario Hospital Association, opened proceedings, until the final evaluation of the session was presented late on the third day.

Mr. Martin, in addition to bringing greetings, and affirming his association's approval of the policies of the section, cautioned everyone not to think of installations in terms of gold door-knobs when the acceptable common type would serve an identical purpose. He also reviewed the formation of the section and, in particular, referred to the fine work of the late Frank Benvenete who handled the initial organization of the section. In further reference to the purpose of the Engineers' Section, he intimated that the recognition of the hospital engineer was directly proportional to the contribution he made to the over-all efficiency and economy of his hospital.

Confirming the truism that "seeing is believing" the members turned out nearly one hundred per cent for visits to hospitals in Toronto. This was an evening extra feature, and that it was well received was proved by the evalu-

(concluded on page 76)

The author is building superintendent, Queen Elizabeth Hospital, Toronto, Ont.

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Hospital Engineer
(concluded from page 74)

ation sheets that placed this event in second position. Ably handled by Jack Cooper, the plan consisted of dividing the total enrolment into separate groups, transportation to the cafeterias of the hospitals selected, and then a conducted tour of all areas related to the engineering department.

What might have been referred to as a busman's holiday was in reality a very informal exchange of information that was of benefit to the home engineer as well as to the visitor. General consensus was that while the large hospital required a more complex chart in the handling of specialized sub-departments, there was also the possibility that overlapping of direction could encourage shifting of responsibility. Most common topic concerned cost of operation and, regardless of the discussion branching off to such items as personnel requirements, extent of maintenance program, firing methods, capital and operational charges, or wage structure, there was always a return to the dollar-and-cents basis of operation. Probably what one engineer said to his departing group just about summarizes the thinking of all present. That was: "We used to think about quantity of fuel input and steam output; now we search out the lowest possible cost of steam output and demand quality in everything."

Other program items, not necessarily in order of evaluation, were as follows:

Mechanical Control of Sterilizing Agents. This presentation stressed the importance of controllers and accurate timing devices, together with proper steam quality, which combine to increase the efficiency of sterilization. Another paper, *Maintenance of Sterilizer Components,* completed a full coverage of the subject, and pointed up that the responsibility for efficient and thorough sterilization, and the possibility of human error, is swinging away from the operator to the engineer.

Sanitation and Water Supply. This subject was presented by the chief sanitary inspector of Toronto, and a director of the Ontario Water Resources Commission. The two speakers developed the need for stringent regulations covering the installation of water and waste systems in hospitals.

Plant Power Survey, constituted a full-day feature, presented by experts from Ontario Hydro and Canadian General Electric. There was no doubt that everyone would have voted it much higher except that it was too comprehensive for the time allowed to make calculations, complete the ten forms, and prepare a summary of results. Each person was supplied with a kit of material that will provide a streamlined method analyzing the hospital electrical system. With the introduction given at the meeting, and the step-by-step technical data they now have, those who attended can now make a complete diagnosis and report on the health of the power system.

Hospital Communications System. Learn by doing was included in this evening visit to the plant of Executone Limited. Technicians demonstrated hospital intercom systems that combined the most advanced type of electronic units with all the benefits of visual bedside signaling.

Air Conditioning in a Hospital, was discussed by a member of a prominent firm of consulting engineers. Charts assisted in the presentation of air conditioning from the design approach. The importance of special considerations required for a properly balanced system was stressed particularly.

The summary and evaluation of the institute was presented as part of the closing ceremonies. Asked their preference of subject material for future meetings, those attending selected public relations and executive training as being most desired. Next they suggested more information on air conditioning.

Other topics, placed in order of preference, requested were: heating and ventilation; boilers; conductive flooring; fire prevention; personnel safety; electrical grounding; costing; modernization; economy; and maintenance.

The final speaker was Harold Dillon, administrative assistant, Ontario Hospital Association. He said that through his constant attendance during the three days he had learned much about the problems facing the hospital engineer and, while he admitted that he could not foresee an entire elimination of all inconveniences, it was quite apparent that engineers were trying to achieve a tolerant and co-operative attitude towards successful departmental relations.

He also said that the Ontario Hospital Association appreciated the co-operation of administrators who considered the institute worthy of the attendance of their chief engineers. He told the meeting that he was happy to be the liaison between the association and the Engineers Section, and congratulated those who had arranged the program.

Chairman Gordon Stephenson closed the very successful session by acknowledging the sponsorship of the Ontario Hospital Association in making the institute possible. He said that what progress had been made so far had resulted from the combined efforts of a great many people, and suggested that the average member was the focal point to which all endeavours were directed. He thanked those who attended, and as a final gesture he introduced Harry Cunningham, of St Michael's Hospital, Toronto, who is secretary of the section. The applause of the meeting left no doubt of the appreciation felt for the efforts of this important executive member.

Engineers Section Executive: chairman, Gordon Stephenson, Toronto East General; vice-chairman, Jack Cooper, Toronto Western; secretary, Harry J. Cunningham, St. Michael's Hospital, Toronto; H. L. Balmforth, Sick Childrens, Toronto; W. W. Davidson, Toronto General; John Ford, New Mount Sinai, Toronto; F. G. Hunt, Toronto East General; W. J. Longeway, Queen Elizabeth Hospital, Toronto; Karl Sieco, London Victoria Hospital; Gordon Young, Toronto Wellesley Hospital. ■

Patients' Library for 25 Years

A library service for hospital patients in Paris, France, was begun 25 years ago by the *Assistance Publique.* Because of the problem of infection the service was divided into three sections—surgical, medical and tuberculosis. Maternity and infectious disease hospitals are not included in the service. A central library arranges the purchase, selection and distribution of books, and the number of books bought is based on an allocation per patient, the average being eight. Usual library routines are followed in the classification and treatment of books. Books are taken to the wards on specially designed trolleys and visits are made weekly, at a regular time. Much of the work is done by voluntary helpers. In 1958, 650,000 books were loaned; 23 hospitals and five sanatoria are in the scheme.

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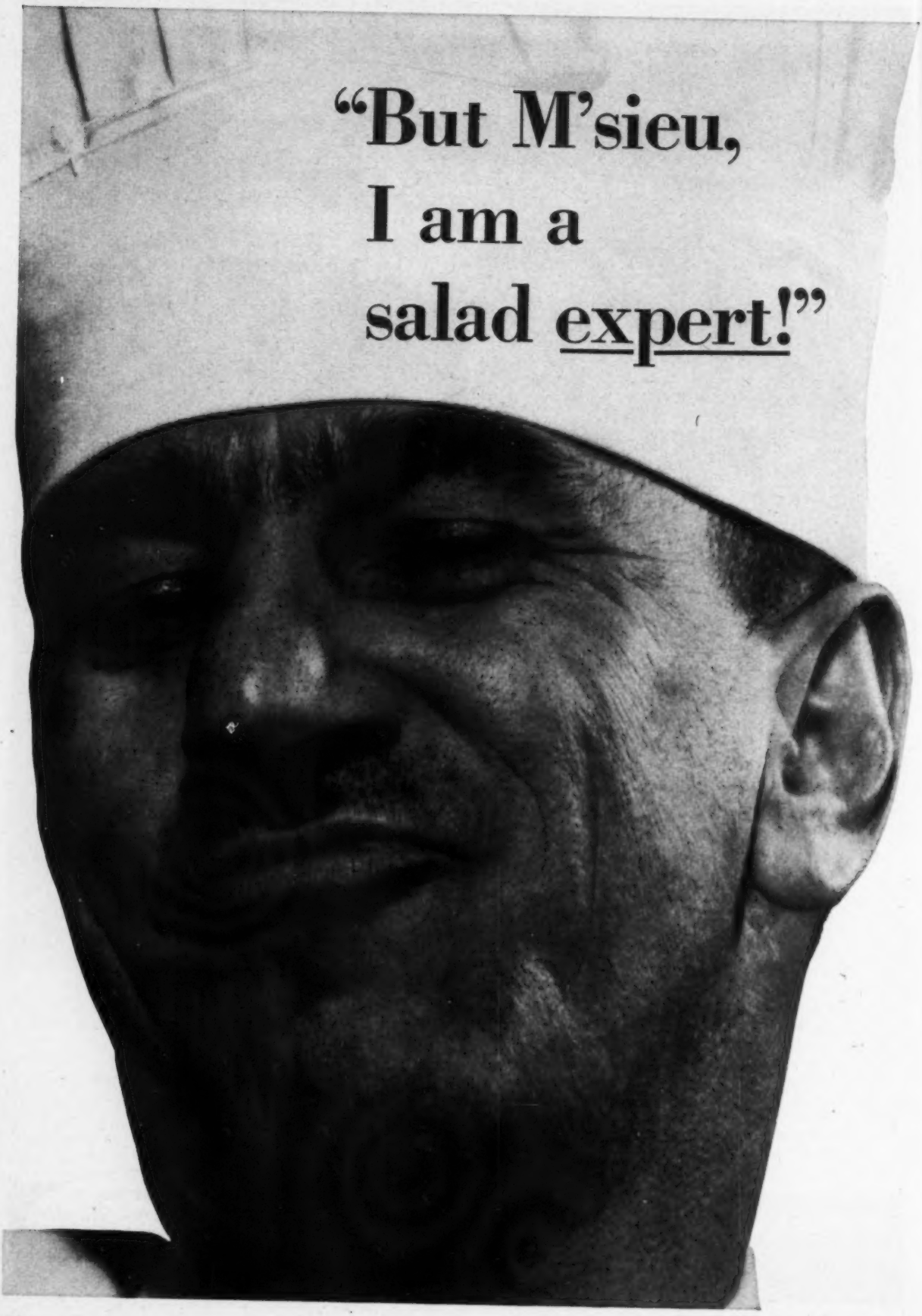
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have varied from 14 at mid-period to 28 in 1960. The upward percentage trend since mid-period is no doubt due to the inclusion of armed services graduates in this category.

Allied appointments outside Canada have been relatively few in number throughout the period. In 1960 the number stood at 5.5. This category claimed 11 per cent of the total in 1952, but only four per cent of the total in the last two years of the period. The rate of increase of appointments in this category over the entire period was calculated to be 0.4 per year.

In summary, Canadian hospitals have claimed approximately half the annual additions in appointments and Canadian allied agencies more than one quarter, while hospitals and allied agencies outside Canada have claimed somewhat less than one quarter. The proportion of Canadian hospital appointments has tended to decrease in recent years, that of Canadian allied appointments to increase, that of non-Canadian hospital appointments to remain fairly constant throughout the period, and that of non-Canadian allied appointments to decrease since the early years of the period.

To obtain the number and principal directions of position changes of the graduates since their entrance to the health field, a count was made of all transfers between and within employment categories since the first class was graduated. In this calculation all promotions within individual hospitals, government health departments, and allied agencies, and the few movements out of the health field, were omitted. By count it was determined that there have been a total of 111 movements throughout the period, covering 77 of the 122 graduates. The 45 graduates who were not included in this analysis because of having held one position only, included 26 who have been in the field for at least one year, 10 who have just entered the field, and nine who are members of the armed services. The distribution of the 111 movements is shown in Table 5.

As would be expected, movements between hospitals have occurred most frequently, accounting for 60 per cent of the total number throughout the period. Next, in frequency of occurrence, are found movements between government health services and hospitals which account for over 22 per cent of the total. The remaining 18 per cent of changes are distributed among nine types of movement, as set forth in the table.

Information concerning the frequency of employment change of the graduates was determined by relating years of service in the health field to the number of changes of each graduate who had held more than one position in the field. Again, promotions within a hospital or agency were omitted from the analysis. Twenty per cent of the graduates were found to have ratios of years of service to employment changes from one to three, 41 per cent from three to five, 17 per cent from five to seven, 11 per cent from seven to nine, and 11 per cent nine and above. The median ratio was found to be 4.0. When, however, lengths of stay in first positions were derived for the members of this group, the following medians obtained—administrators: 25 months; assistant administrators: 25 months; administrative assistants: 19 months; and department heads: 7 months.

Another analysis of the data describing the movement of graduates in the health field consisted of determining numbers and proportions of the group who have served in (a) one of the four employment categories only, and (b) more than one of the categories, and subsequently, determining what employment category combinations have occurred. Examination of the service records of 87 graduates having at least two years of experience in the health field resulted in the distribution of Table 6.

As indicated in the table, approximately 65 per cent of the graduates have chosen to limit themselves to a single employment category, the principal one being hospitals. Over 30 per cent of the group have served in two categories, most falling in the hospitals/government combination. About four per cent of graduates have served in three categories, the sole combination being hospitals/allied agencies/government.

Summary

Graduates of the University of Toronto program in hospital administration have been distributed, over the years, among four health employment categories. The principal ones are hospitals, government health services, and allied health agencies (hospital association, medical plans, private consulting). A small proportion of the total have been engaged, either full time or part time in university education and research. In recent years a fifth category, the armed services, has become significant.

Throughout the period somewhat more than one half of the hospital-employed graduates have served at the chief executive level. The remaining proportion have been divided between the levels of assistant administrator and administrative assistant, the former classification becoming more significant recently and the latter less significant.

The proportion of graduates serving outside Canada has varied throughout the years from one quarter to one third. In recent years the trend has been for Canadian employment to increase and non-Canadian employment to decrease.

During the past six years the number of Canadian hospital-employed graduates has increased at a greater rate than the number of public general hospitals, with 100 beds and over. Accordingly, the proportion of employing-hospitals in this size range is increasing. By July, 1960, the percentage of hospitals employing graduates had risen to more than 16 and that for hospitals employing graduates as administrators to more than 11.

From 20 to 30 per cent of the graduates over the years have been employed outside hospitals. Recently, non-hospital employment has tended to increase somewhat, due to the enrollment of military personnel in the graduate course and their subsequent return to the forces.

Employment changes during the period have centred mainly within the hospital employment category; 60 per cent of all movements have taken place between hospitals. Over 20 per cent have been between hospitals and government health services.

Nearly two thirds of the graduates who have been in the health field for a time have served in a single employment category. In most cases this category has been hospitals; a small number have limited themselves to government service. The remaining one third have obtained their health services experience in more than one employment category. Most of these graduates have divided their careers between hospitals and government. ■

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pitals, either could not avail themselves of existing courses or else found them to be too specialized. Moreover, Saskatchewan has a tradition of leadership in the health care field. Therefore, the delegates did not hesitate to accept responsibility for initiative in undertaking to implement new ideas in this field.

The Saskatchewan Hospital Association co-opted the assistance of the College of Commerce at the University of Saskatchewan. The Association, the University, and the Kellogg Foundation now participate jointly in financing those costs which are not covered by student fees.

First came the formation of an advisory board which was composed of representatives from the College of Commerce, the Catholic Hospital Conference, the Saskatchewan Department of Public Health, and one or two members-at-large. The functions of the board are, largely, to indicate the "pulse" of the related organizations and to act as a reserve of knowledge and experience in formulating broad, general policies.

Organizational Stages

The advisory board can only suggest policy but its members have given excellent counsel. There was a need, however, for more accessible advice on a day-to-day basis in preparing the program. For this reason, a curriculum committee, an admissions committee and a disciplinary committee have been formed. The admissions committee is composed of representatives of the College of Commerce. The disciplinary committee which functions rarely is made up of College of Commerce personnel reflecting their interest in student performance. The curriculum committee has advised on curriculum, potential lesson authors and reviewers, potential preceptors, and a variety of other matters of importance. In addition to committee recommendations, the course supervisor has been able to supplement his background of knowledge with orientation tours to the Canadian Hospital Association's program in hospital organization and management and the program of continuation education in hospital administration at Columbia University in New York City.

Objectives

Fundamentally, the course has been established to: (a) provide the student with a knowledge of the administrative tools he will use as executive officer of a small hospital; and (b) develop, insofar as possible in a correspondence program, the student's knowledge, understanding, and ability as an administrator.

Moreover, the course has been organized in such a way as to develop the student's ability to absorb knowledge, to exercise critical faculties, to analyze and report on findings in a comprehensible fashion, and to be at ease in a group situation. The following explanation of course content and organization may demonstrate how these objectives are pursued.

Course Content

The lesson material which has been prepared falls into three general categories:

1. Matters of general administrative concern such as accounting, law, office management and secretarial practice, employee relations and the principles of organization and management;

2. The specific requirements of institutional administration, such as departmental management, medical staff organization, and hospital organization and management; and

3. The hospital's rôle in the community.

Within the above framework, the program has been constructed of lessons concerned with the management of each department in the hospital, with the principles of planning and construction, public relations and the economics of health care.

Material is presented in three different ways: (a) correspondence lessons; (b) short, intensive extra-mural seminars on a periodic basis, and (c) an annual intra-mural session of two weeks.

The correspondence portion of the program consists of 26 lessons in each of the two semesters of the program. Each lesson is supported by various addenda, reprinted data, and required and recommended readings. The student prepares answers to carefully chosen problems at the end of each lesson; the problems are marked by individuals expert in that particular area of knowledge or practice.

The extra-mural seminars are conducted by preceptors chosen on the basis of, first, demonstrated knowledge and ability and, second, regional location in order that the student has a minimum distance to travel. Regional seminars are held every six weeks, and during the week of the seminar the student has no lesson to prepare. Because of these "gaps" in lesson assignment and the Christmas break, the course runs from early September to late April.

Following each winter semester, in May or June the students will attend a two-week intra-mural summer session ending with a comprehensive examination. The summer seminar will serve to expand and elaborate on material already covered and to introduce new data on topics which lend themselves best to verbal presentation. A great deal of material will be presented in lectures but, also, individual development will be fostered through discussion groups, case studies and seminars.

To mention academic standards only briefly: the student must maintain a C average (60-69 per cent) in order to write the final examinations and must achieve a C grade on this in order to enter the following year of the program or, in his final year, to receive the certificate.

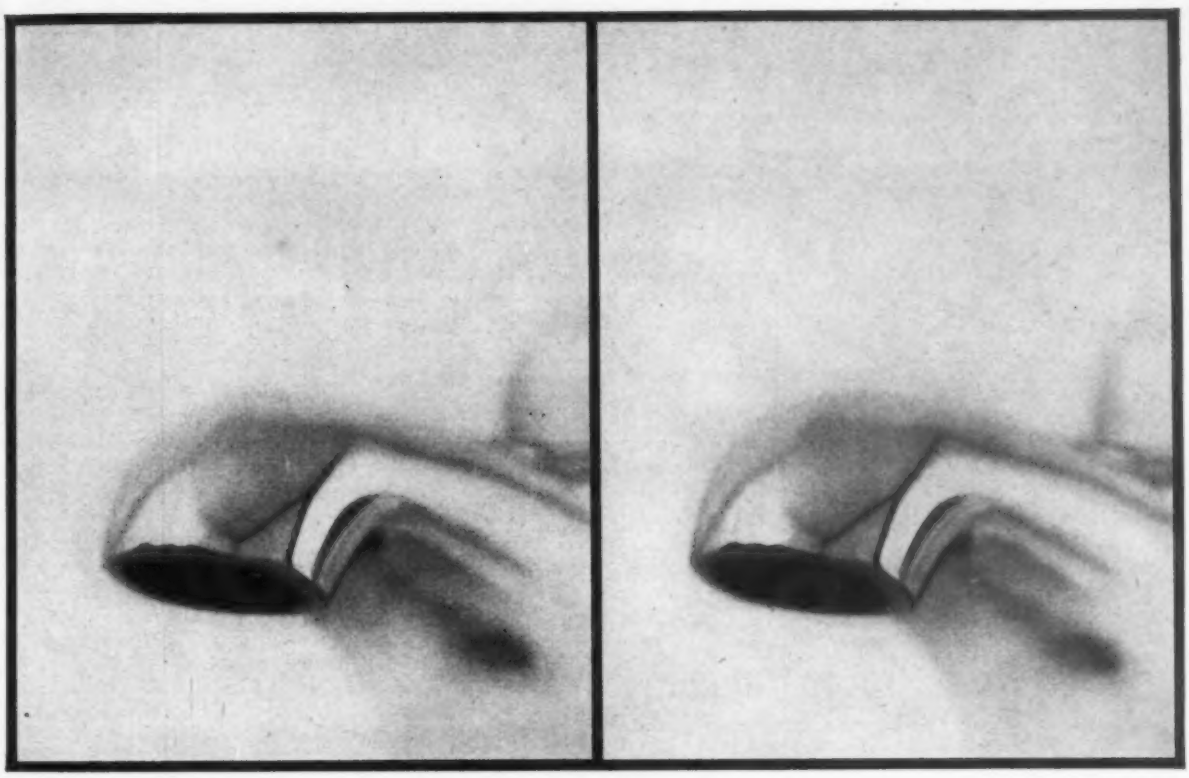
Course Operation

One might well ask at this point: does it work? Is the program generally speaking, a success? What reaction was there from the potential student body? With a minimal amount of advertising, the reaction was good. Over 80 applications were received from five provinces. Similarly, applications for the 1961-63 program are being received at an encouraging rate.

Whether or not students and preceptors are satisfied with the program can only, at this time, be answered according to subjective opinion. The consistency of favourable comments which have been received may be taken as evidence that the course is considered to be of value. There have been criticisms, primarily regarding the amount of work which must be done, but the student and preceptor reaction has generally been highly satisfactory.

One might also expect the drop-out rate to act as a barometer of student opinion. The drop-out rate has been high but, at the same time, the reasons given have not indicated dissatisfaction. (The commonest single reason has been a lack of free time due to a hospital construction program.) Further-

(concluded on page 88)



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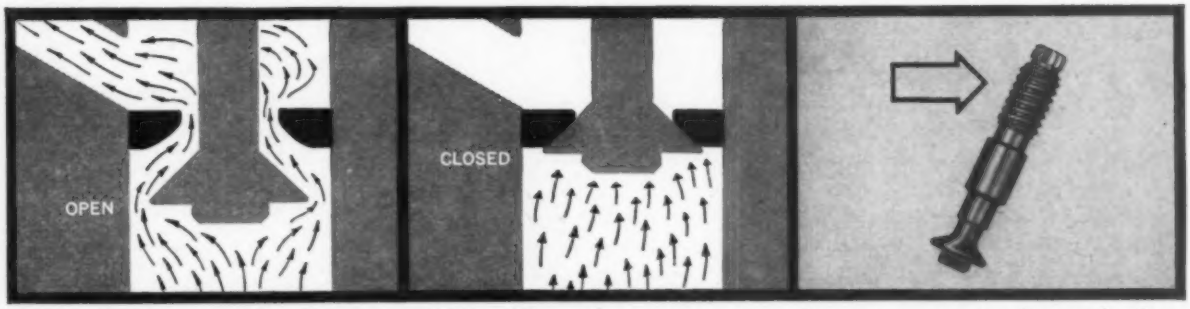

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Coming Events

May 23—Meeting of Association Secretaries, 25 Imperial Street, Toronto 7, Ont.

May 24-26—Canadian Hospital Association Assembly Meeting, Park Plaza Hotel, Toronto, Ont.

May 26-27—Catholic Hospital Association of Canada Biennial Convention, Montreal, P.Q.

June 2-3—Canadian Society for Clinical Chemistry Annual Meeting, Ontario Veterinary College, Guelph, Ont.

June 2-5—Canadian Public Health Association, University of Saskatchewan, Saskatoon, Sask.

June 5-9—Maritime Hospital Association, Nova Scotian Hotel, Halifax, N.S.

June 5-9—12th International Hospital Congress, Island of S. Giorgio Maggiore, Venice, Italy.

June 5-29—Hospital Organization and Management Summer Session, Winnipeg, Man.

June 12-15—Catholic Hospital Association of United States and Canada, Detroit, Mich.

June 12-16—25th C.S.L.T. Convention, Royal Alexandra Hotel, Winnipeg, Man.

June 13-15—26th annual convention of the Canadian Dietetics Association, Hotel Vancouver, Vancouver, B.C.

June 19-23—Canadian Medical Association, 94th Annual Meeting, Queen Elizabeth Hotel, Montreal, P.Q.

June 20-21—Catholic Hospital Conference of Saskatchewan Annual Convention, Saskatoon, Sask.

June 20-23—Western Canada Institute, Saskatoon, Sask.

June 23-29—Third International Convention of X-ray Technicians, C.S.R.T. and A.S.X.T., Queen Elizabeth Hotel, Montreal, P.Q.

June 25-July 21—Fourth Annual Hospital Administrators' Development Program, sponsored by The Sloan Institute of Hospital Administrators, Cornell University, Ithaca, N.Y.

June 26-28—Comité des Hôpitaux du Québec Convention, Montreal Show Mart Inc., Montreal, P.Q.

Sept. 10-14—International Tuberculosis Conference, Royal York Hotel, Toronto, Ont.

Sept. 11-12—O.H.A. Institute on Public Relations, O.H.A. headquarters, Toronto, Ont.

Sept. 24—Convocation Ceremony, A.C.H.A., Convention Hall, Atlantic City, N.J.

Sept. 25-28—American Hospital Association, Atlantic City, N.J.

Oct. 1-2—The Catholic Conference of Manitoba, Marlborough Hotel, Winnipeg, Man.

Oct. 3-5—Manitoba Hospital and Nursing Conference, Royal Alexandra Hotel, Winnipeg, Man.

Oct. 5-6—Saskatchewan Hospital Association Annual Meeting, Saskatchewan Hotel, Regina, Sask.

Oct. 8-9—Catholic Hospital Conference of Alberta, Calgary, Alta.

Oct. 10-12—Associated Hospitals of Alberta Convention, Calgary, Alta.

Oct. 15-16—Catholic Hospital Conference of British Columbia Annual Convention, St. Vincent's Hospital, Vancouver.

Oct. 17-19—British Columbia Hospitals' Association Convention, Hotel Vancouver, Vancouver, B.C.

Oct. 23-25—Ontario Hospital Association, Royal York Hotel, Toronto, Ont.

Going Places?

"Place dropping" is said to be replacing "name dropping" as a prestige symbol. But with $39.50 down, the traveller with éclat during the 1960's will season his conversation with tantalizing "place dropping" such as Bangkok, Hong Kong, Yokohama and Singapore, leaving Madrid, Venice, Paris and Vienna to the more mundane.

Administration

(concluded from page 86)

more, several discontinuing students have reapplied for next year. It might be said that regardless of the students' evaluation of the program, they have demonstrated a remarkable interest and conscientiousness. They are, on the whole, eager to learn and willing to work very hard. If there were no other considerations, the motivation of the students would definitely justify the program.

Finally, the level of performance which the students are achieving ought to provide some indication of their potential ability and the degree to which this is being stimulated. There is no question, on reviewing their assignments and attending seminars, that their facility as students and their knowledge of the field is developing rapidly.

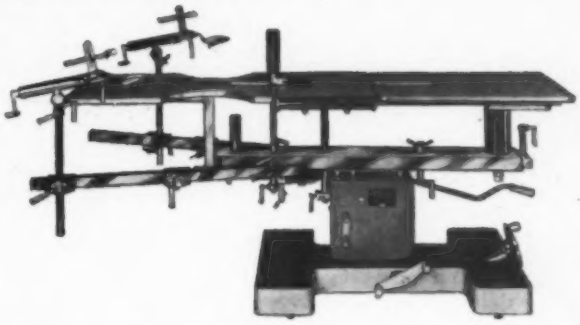
It is difficult not to accept the proposal that a program such as that which has been described is desirable in Canada when one realizes that, first, over 600 Canadian hospitals are in the ten to 50-bed group. The Kellogg Foundation, in authorizing its grant monies, recognized the significance of the point just discussed when, as its only stipulation, it required that the program be prepared and operated as a pilot project. Although it is too soon to determine the extent and nature of duplication which is desirable, there is little doubt that there will be future extension of this program. The most satisfactory arrangements will be more easily determined in 1962 when our experiences will be thoroughly reviewed and evaluated.

Undoubtedly, this program will contribute to the quality of administrative practice in many hospitals and, consequently, to the quality of patient care. It may also ultimately result in the development of realistic certification standards for administrative personnel in hospitals, with the attendant possibility of effective professional organization. The provision of a well-defined body of fundamental knowledge raises the possibility of more effective continuing education such as that attempted through association institutes, conventions and seminars. University centres or hospital associations may also find it feasible to undertake "post-graduate" programs for administrators who have their certificates in Administration of Small Hospitals. ■

TABLES

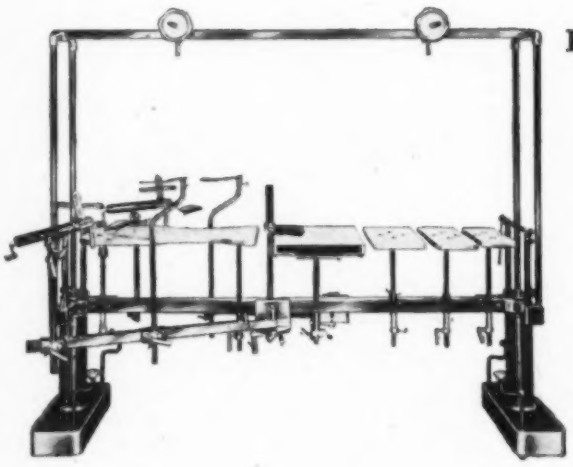
DVHI ORTHOPEDIC AND SURGICAL TABLE

Flexibility facilitates the operation of this Chick table for maximum efficiency. Variable height is a feature, adjustable by means of a self-contained hydraulic unit with built-in safety factor. Tilts laterally, offering Trendelenburg position of 15°, *reverse Trendelenburg of 7½°*. Other outstanding features include *new foot-locking device for positive table positioning*, and carriage-mounted Chick Transverse Cassette Tunnel. DVHI is ideal for all Orthopedic surgery, most general surgery, and all cast work. Write for complete information.



CHICK

APPROVED HOSPITAL ORTHOPEDIC EQUIPMENT



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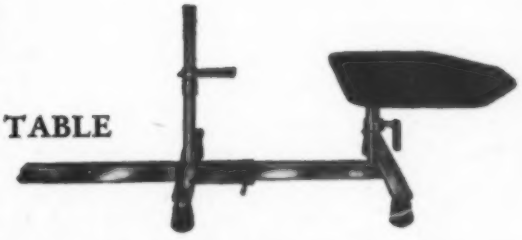

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CHICK

(continued from page 47)

least costly in the long-run. Careful study should be made as to which brand or make is best for the hospital. Because a certain soap is being used satisfactorily at the Winnipeg General, it does not follow that it will be as successful at the Dauphin General. There are varying conditions which need consideration in different areas.

Personnel

The department may be directed by an executive housekeeper, who may or may not have assistants helping her to supervise the people hired. Housekeeping will probably have the greatest turn-over of any department in the hospital, because most workers here regard their job as temporary and, usually find themselves moving from six months to a year. Many of the jobs are perfunctory and offer little future, since there is a small chance for substantial promotion. Some effort should, therefore, be made to give the employee an incentive in order to build up morale and cut down labour turn-over.

Most of the workers are unskilled when they are employed, and a great many of them have little, if any, educational qualifications. Therefore, their selection, orientation, training, and supervision becomes important. The department should try to develop some way of screening the new applicants to select the better workers. The worker should not be put to work immediately; rather, he should be made familiar with the hospital and the various routines which he will have to follow. A training program is essential. This can best be done in a demonstration unit. Instructions can be prepared in writing so that the worker can later review them. However, it must be remembered that some of the housekeeping employees cannot read. It is important to give instructions both verbally and in writing.

Careful supervision and carefully prepared work schedules will help the employee perform his duties more efficiently. A work schedule is formulated by surveying the area to determine the cleaning needs, by deciding how often each piece of equipment and each type of surface should be cleaned, by establishing the time necessary for each cleaning job, by approximating the best time to do the job, and by setting up a schedule telling the worker what he is to do at half-hour and hourly intervals.

It is very difficult to give any specific ratios, as they will depend upon a great number of factors such as the size and age of the building, the equipment, and the general organization of the whole staff.

The greatest amount of work done by this department will be from 7 a.m. to 4 p.m. However, some employees, particularly the floor washing crew, may work during the night in some areas. Under certain systems, housekeeping girls distributing food trays, often have to be on duty as late as 5:30 p.m.

Besides the records of the personnel which may be kept in the housekeeping department, the executive housekeeper will also want a floor plan of the hospital, an organization chart of the hospital, work schedules, records of repairs, records of supplies and inventories of supplies, equipment, furniture and furnishings.

Hazards

The housekeeping department plays a vital rôle in preventing fire and accidents. This department can remove many of the causes of fire by cleaning up rubbish and garbage, by properly storing paints, oily rags, greasy linens, and solvents. The employees should be familiar with the hospital's fire regulations.

Listed here are some of the common accidents which often involve housekeeping personnel. Falls are caused by objects in corridors or on stairs, mop handles and brooms in passageways, flower petals, soap film, oil or snow on floors, improper waxing on floors, poor belts and inadequate hooks for window washers, unsteady ladders, and workers leaning from windows. Cuts are often caused by glass and razor blades in waste receptacles, sharp ends or points on metal baskets and packages, broken china handles on lavatory bowls and bathroom tubs, steel wool used in cleaning. Irritations may be due to the worker's non-protection in contaminated areas, undue exposure to cold or moisture, and low resistance. Strains and bruises are sometimes caused by lifting very heavy objects, and by swinging doors.

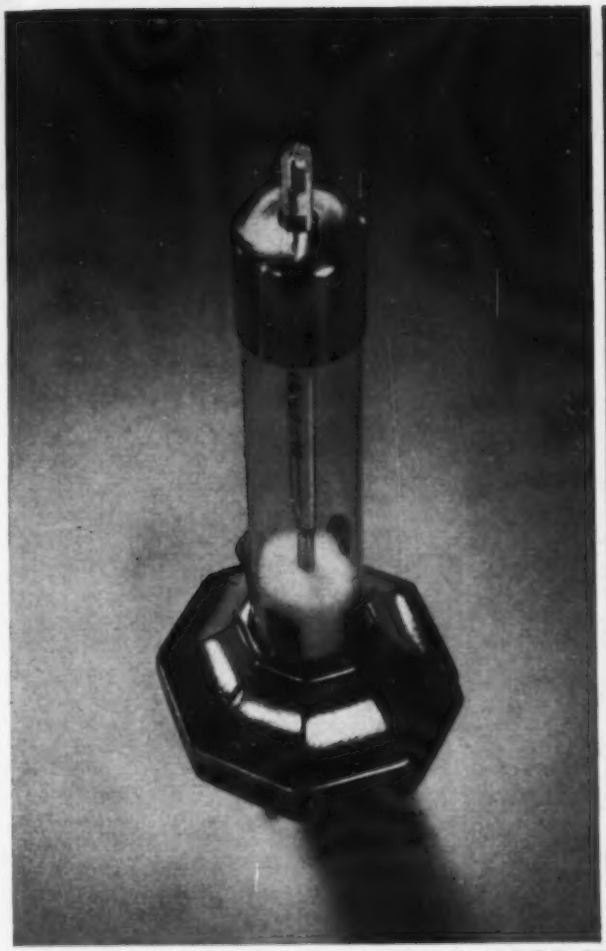
When a disaster strikes within a hospital, the first concern is the safety of the patients. If the disaster calls for the evacuation of patients from the affected area, housekeeping personnel may well be included as members of the evacuation teams or litter bearers. Housekeeping personnel are accustomed to working around patients, and although they are not trained to assist in administering treatment, they are to a degree familiar with the precautions that must be taken in moving a patient. Housekeeping personnel might well receive the same training in the various evacuation methods which is given to other personnel. In case of fire, housekeeping personnel may be members of the fire fighting teams and as such should be trained in the use of various types of fire extinguishers and other fire fighting equipment. They should be impressed with the importance of closing windows and barrier doors when fire and smoke are present. The response fostered by this training should be automatic and should require no direction.

The rôle of the housekeeping employee in the prevention of disaster should also be considered. Housekeeping staff can do more, perhaps, than any other group to prevent one of the most feared of all hospital disasters—fire. Housekeeping employees are in the areas of the hospital where fire may originate most easily. They must be fully aware of the importance of eliminating all fire hazards. It is their responsibility to ensure that all trash and refuse is disposed promptly. Storage rooms should be regularly inspected for possible fire hazards. A clear-cut procedure should be established for prompt reporting of defective equipment noted in any part of the hospital. Housekeeping personnel should be trained to be constantly alert for danger signs and to accept the responsibility of reporting such conditions.

Finance

In discussing the subject of financial control, I would like to stress the need to develop records as simply as possible. Plan them to fit the needs, but avoid recording unnecessary details. Here again, we find the importance of simplicity—the consolidation of facts and figures—so that records and inventory controls offer data at a glance. Cost control is one of the best methods in helping the department to operate more efficiently and effectively. Important as control may be, it should be clearly understood that it is not the only approach. It is one method, a

(concluded on page 92)



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W

Housekeeping Department

(concluded from page 90)

highly significant method, of dealing with a large majority of waste problems. However, preventing waste is far from being a one-man-job. Everybody's co-operation must be enlisted. In order to be an effective watch dog over costs, housekeepers must first accomplish four other jobs. They must determine the causes of waste, watch over materials, the condition of equipment and the use of man-power. They must establish plans or procedures to eliminate waste. Supplies and equipment should be standardized. Employees must be trained for delegated responsibilities to follow through. If housekeepers attack their waste problems in this manner, they will soon realize a sharp cut in costs. They must be alert to the fact that most jobs can be improved by work simplification. They should develop procedures that will reduce the work loads, which in turn will enable them to reduce man-power. They ought to establish accurate guides for purchasing. This is the most effective way to standardize supplies and equipment procurement. Also they must make reduction of costs a reality in the budget or expense reports by following through.

Research

The housekeeping department will be constantly besieged by salesmen trying to sell various products. Only by careful testing can it be determined which will be the best for your particular hospital. Each salesman should be asked to present a sample of his product for testing. Results are not determined for several weeks sometimes, and this should be understood by those conducting the tests. A good "research" program will save the hospital money, but it must be remembered that the time and money spent on this should be in proportion to the savings it may bring.

Reports

The executive housekeeper may prepare a number of reports for the administrator. These include a monthly report (which includes the number of personnel, the work done over and above daily cleaning); special interest reports about special work when they are warranted; facts about personnel; and an annual report which should include the number of personnel, turn-over, amount of work done, special accomplishments, needs for the coming year, equipment, inventory, and suggested ways of cutting costs.

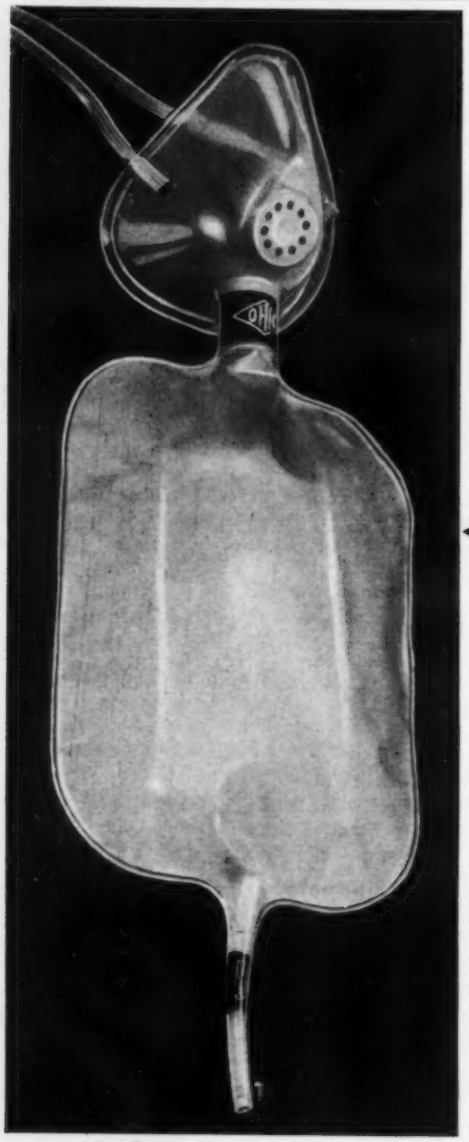
The housekeeper should be allowed to prepare a budget at the beginning of each fiscal year. This will give her a chance to plan her activities for the time ahead. The biggest item of expense will be wages and salaries which will be about 90 per cent of the total.

Public Relations

It is a known fact that a clean atmosphere in the hospital will not only be important to better patient care and better personnel relations but also to better public relations. Public relations just don't happen, but require careful planning. Everyone in the housekeeping department must be made aware that the patient and his needs are his first, foremost and last concerns. ■

Dirty Money

The Bank of France reports that prior to issue, all French bank notes are treated by a secret process, with a disinfectant which renders unharmful all the microbes and bacteria with which they may become infested in the course of their circulation.



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Hygienic Environment
(continued from page 48)

The rubbish problem was solved by lining rubbish cans with plastic liners, which could be tied and completely lifted out of the container and brought to the incinerator.

A germicidal textile lubricant has been developed to be added to the last rinse in the laundering of all hospital linen. This highly substantive rinse lubricates the fibres in the textile so that they glide over one another and do not break off to form lint and dust; thus, damp linen will inhibit the proliferation of bacteria. Moreover, bacteria landing on the fibres in the wet state will be destroyed. Blankets are particularly suspect; because of the nature of woollen fibres, they are seldom exposed to temperatures which are bactericidal. For this reason, germicides must be used as a soak, preliminary to washing.

The standard which we have found for clean blankets and linen is 20 or fewer organisms per square foot with no staphylococcus aureus. These cultures are done by simply impressing the textile against a blood agar plate by means of a sterile flask.

Air

Operating room: five or fewer organisms per cubic foot
Ward: 20 or fewer organisms per cubic foot
No pathogens

Fall-out

Operating room: 5 or fewer organisms per square foot per minute
Ward: 20 or fewer organisms per square foot per minute
No pathogens

Floor Cultures

Operating room: 5 or fewer organisms per square centimeter
Ward: 10 or fewer organisms per square centimeter

Furniture

Sterile; no pathogens

Bedside Water

Same standards as water supply

Linen and Blankets

20 or fewer organisms per square foot

Soap

Sterile

Air conditioners have coils and humidifying chambers which are excellent areas for bacterial multiplication. Bactericidal agents should be incorporated into their maintenance. Recirculating air is a hazard, as demonstrated in an experiment in a new wing of a hospital with laboratories and offices on two floors. Spraying of Escherichia coli in a second-floor laboratory resulted in immediate recovery of these organisms in a first-floor laboratory and in every office served by the air conditioner.

The best method for evaluation of ward or operating room cleanliness is by volume air, settling plate, and floor cultures combined. Good floor care and good techniques in bedmaking and housekeeping

(concluded on page 96)

Wild M 20

A modern general purpose and research microscope meeting the highest requirements.

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like a big cousin to the ampoule

and with the same high ampoule standard of safety

The ABBO-LITER bottle you see pictured here is, in principle, an oversized ampoule. Its contents are sterile, pyrogen-free, and like the ampoule, *packaged at atmospheric pressure.*

Administration is, in effect, by a simplified ampoule technic too. Even as the nurse must open an ampoule, so she uncaps the ABBO-LITER. Simple aseptic procedure prevents contamination in both cases. No piercing pins to drive, no vacuum to relieve, no forcible inrush of room air. Now she need only attach the administration set, and begin venoclysis.

Has she opened the correct bottle? The label of any container tells the contents, of course. But only the ABBO-LITER gives her the extra precaution of stamping the solution identity on the safety cap, where it is seen as a double check. A small added safeguard. (Small, that is, until it prevents somebody's error.)

Under the safety cap is the bottle cap, its threads formed *after* it was applied to the bottle, to give a perfect fit. Inside the cap, three more units: an inert hydrocarbon sheet, a soft rubber seal, and a movable metal turntable that makes the tightly drawn cap easy to unscrew.

And about the ABBO-LITER, itself: Its glass is made to strict specifications similar to those for ampoules, gas-treated to provide a neutral pH. Clearly graduated and labeled for easy reading upside down, too, so that the nurse can easily check its suspended contents at a glance. And when she is at a distance, filtered air bubbles rising help her monitor the continued flow.

But see the convenience of the ABBO-LITER and its equipment for yourself. Your Abbott hospital representative will be glad to demonstrate.

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Hygienic Environment

(concluded from page 94)

will be reflected in the number of organisms suspended in the air and settling out on exposed blood agar plates. A typical experiment in a 14-bed surgical ward before any work had been done on environmental sanitation showed high air counts with a range of 90 to 620 organisms per 5 cubic feet, settling plates with 71 organisms landing per square foot every minute, and an average floor count of 80 organisms per square centimeter. Three years later, with floor flooding, laundry treatment, elimination of dry mopping, and education of personnel, the counts have all been reduced as shown in an experiment in the same surgical ward.

Our operating room reflects a very low bacterial contamination. A problem with which we were faced when kidney transplants were started in our hospital was the great susceptibility of the patient to infection. Was it possible to keep a patient in a room just off the hospital ward? The walls were sprayed with germicide; the floor was flooded daily with germicidal detergents; anyone entering the patient's room changed into surgical scrub clothing; masks and gowns were worn; a shoe bath with germicide was place at the entrance to the room. With these techniques, we lowered the ward bacteriology to operating room level; and none of our patients has acquired infections.

A hygienic environment can be described by the bacteriology. This is the only valid criterion for cleanliness. There are no official standards. We have set up certain basic standards for our own use and have found them useful in evaluating cleanliness in all hospital areas. (See page 94)

Cleanliness is no longer a philosophy; it is a scientific concept that can be defined by quantitative bacteriology. In this kind of cleanliness only lies our salvation from hospital infections. ■

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C.D.A. Convention

The Canadian Dietetic Association again meets this year for its annual convention, from June 13 to 15 in Vancouver, B.C. Anthropologists, sociologists and political scientists will participate in the meeting to guide the discussion of current food problems. It is anticipated that some three hundred dietitians, nutritionists and educators will gather. Some of the feature speakers are as follows: Dr. Jennie Rowntree from the University of Washington will discuss some aspects of professionalism; Dr. Harry B. Warren from the University of British Columbia will speak on "Health and Trace Elements"; Dr. Brock Chisholm, representing the World Federation of Mental Health, will deliver the Violet Ryley—Kathleen Jeffs Memorial Lecture, an annual feature. The guest speaker at the annual banquet will be Dr. Hugh Keenleyside, member and fellow of the Royal Geographical Society.

Revolutionary X-ray Equipment

The Toronto General Hospital, Toronto, Ont., has installed a new x-ray machine that drastically reduces the possibility of harmful radiation on patients and also produces a much clearer image. The equipment permits motion pictures to be taken while it is in operation; does not require a darkened operating room for viewing; and allows an enlarged image to be screened on closed circuit television. This permits closer study of specific areas for examination.

Super Flaker Model DF-4. Makes up to 100 lbs. of perfect crushed ice daily. Stores 40 lbs. in insulated bin.

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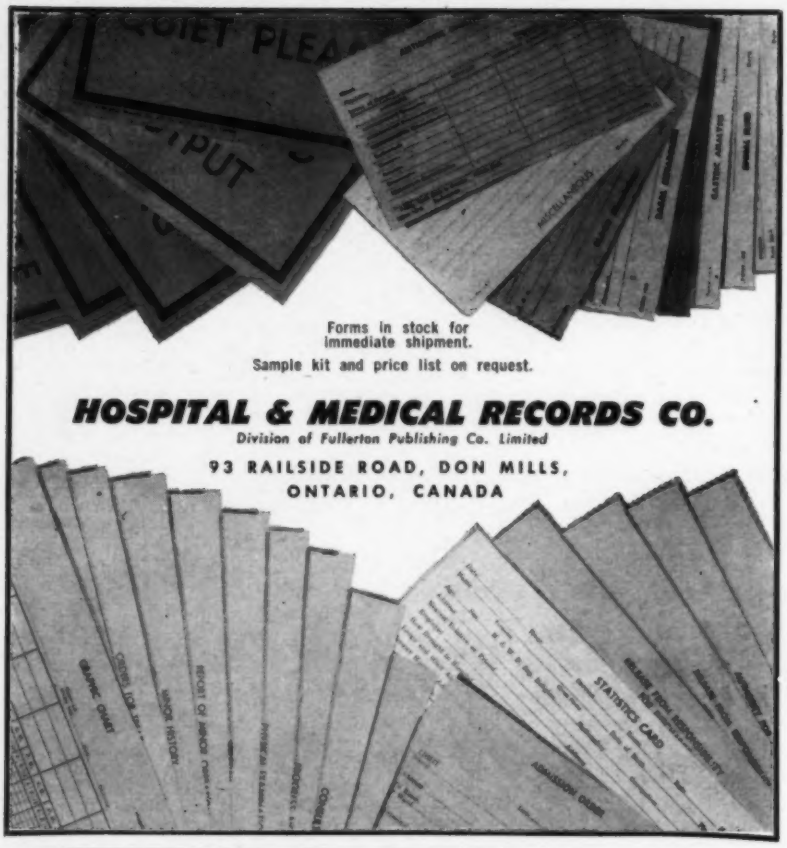

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Twenty Years Ago

From Canadian Hospital
May, 1941

England's War-time Morbidity Figures Lower than in Peace-time

An American Red Cross official told delegates at the national conference held in Washington recently that England's war-time loss of life is actually less than in peace-time. This is accounted for "by taking automobiles off the highways, by exercising caution in the home and in industry, by improving diet, by safeguarding self and community from the threats of epidemics through sanitation, vaccination and immunization, the English are saving more lives than their enemies are able to take."

Error in Diagnosis Costs Doctor $50,000

A New Jersey Circuit Court jury has assessed a New Brunswick, N.J., doctor $50,000 for failing to diagnose pregnancy and as a result being held responsible for idiocy of a five-year-old boy. It would appear that the doctor gave the mother x-ray treatments for an abdominal tumor not realizing that she was pregnant. The child was awarded $35,000 and the parents $15,000. While the American scale of awards is often much higher than the amounts assessed in Canadian courts, the principle involved might readily apply. This case indicates the extreme importance of carefully differentiating between tumors and pregnancy. Reports do not indicate whether or not the blood sedimentation test to differentiate was made.

Dr. Charles Best to Succeed Sir Frederick Banting

The new director of the Banting-Best Department of Medical Research of the University of Toronto will be Dr. Charles Best. This appointment to one of the leading research positions in Canada will be a popular one, not only because of Dr. Best's early and continued association with Dr. Banting in many of his research problems, but because of the outstanding ability of his own work as teacher and research worker in physiology.

Dr. Best, a "bluenose", although he did happen to be born in Maine of Canadian parents, will retain his post as professor of physiology, but will relinquish the chair of physiological medicine and the assistant directorship of the Connaught Laboratories.

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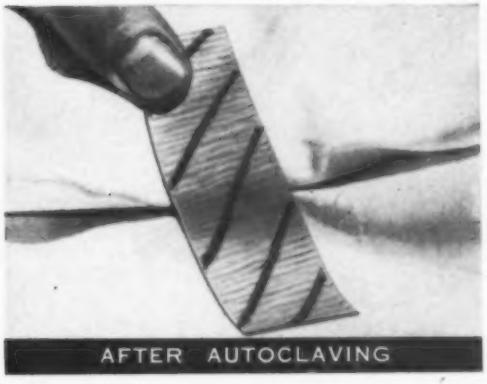

AFTER AUTOCLAVING

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Construction and Renovation

The Hotel Dieu of St. Joseph, Windsor, Ont., will receive $676,786 for 265 additional active treatment beds, 53 bassinets and 35 beds for psychiatric cases.

New construction assisted by a grant amounting to $5,000 will provide Brooks Municipal Hospital, Brooks, Alta., with an additional ten beds in the nurses' residence.

A new hospital with 66 active treatment beds, 30 nursery bassinets and accommodation for 15 nurses at the Providence Hospital, Lachute, Que., has been completed with the assistance of a grant amounting to $175,200. This building replaces a former private residence which had been used as a hospital.

The Bloorview Hospital Home and School, Toronto, Ont., a hospital for chronically crippled children will receive a grant of $104,000. The sum will assist in the provision of 52 additional chronic care beds.

The Dryden District General Hospital, Dryden, Ont., will receive $38,000 to assist in new construction which will add seven active treatment and 12 chronic care beds to existing facilities.

A grant amounting to $591,000 will assist in increasing hospital bed capacity from 68 to 318 at the St. Michel Hospital, Cité St. Michel, Que. The sum will also provide for 67 nursery bassinets and for an increase of services and health centre facilities.

An increase in accommodation will result from construction and renovations now in progress at the Fillmore Union Hospital, Fillmore, Sask. A grant of $22,500 will assist in the provision of an extension which will increase facilities by three beds and one nursery bassinet and provide space for 10 staff beds.

St. Mary's General Hospital, Kitchener, Ont., will receive grants totalling $849,000 over a three-year period, with $649,000 to aid new construction and $200,000 to assist in renovations. The construction will more than triple the present bed capacity of 122 to provide a total of 389 beds. The new structure will also include 24 bassinets; a large area for a community health centre as well as space for training facilities; modern operating and delivery suites; radiology, emergency and autopsy departments; dining and teaching areas;

and accommodations for 28 nurses. The renovation phase of the project will modernize the existing nurseries, dietary, laboratory and autopsy departments and provide relocation of services for the new ward and semi-private floors.

The International Grenfell Association has been awarded an $11,600 grant to assist in the building of a new nursing station at Conche, Nfld. This sum will help meet the construction costs of staff quarters, male ward, children's ward and maternity ward comprising a total of eight beds, as well as out-patient facilities.

A $468,800 grant will be awarded toward the construction of the new Central Newfoundland Hospital, Grand Falls, Nfld. The hospital will have 193 active treatment beds, 26 bassinets, and some 9,000 square feet of space for ancillary services. It will have a 15-bed intensive treatment section attached to the operating and recovery rooms; a 20-bed maternity section with labour and delivery rooms; newborn nursery with isolation facilities; a child-care section of 48 beds and cribs, as well as medical and surgical facilities and a psychiatric division. This $4,000,000 project will provide complete hospital facilities for central Newfoundland.

The Drumheller Auxiliary Hospital, Drumheller, Alta., was awarded $45,000 to assist in construction of a 30-bed chronic care wing. The wing will be attached to the Drumheller Municipal Hospital and will use the Municipal Hospital's services; however, the Auxiliary Hospital will operate independently.

Construction of new facilities at the Fairview Municipal Hospital, Fairview, Alta., will be assisted by an $18,000 grant. Space for six additional beds, as well as a new operating room, emergency, laboratory and x-ray departments are planned.

Active treatment bed capacity will be more than doubled at the Northwestern General Hospital, Toronto, Ont., with the aid of a federal grant amounting to $354,000. The four-storey addition will contain 177 additional beds bringing the total to 281. The delivery suite, kitchen and cafeteria will also be remodelled.

The Parry Sound General Hospital, Parry Sound, Ont., will be assisted by a $22,183 grant in modernization of its operating room suite.

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Laundry Operation
(concluded from page 45)

since 1958. The reason for this is that more nurses are wearing nylon uniforms than in previous years, and these they must launder themselves. Operating room one-piece suits were pressed in previous years; they are now dry tumbled.

Flat work shows an increase of two per cent. It is shown that there is an increase in pounds per patient day of 1.9. The years 1958 and prior to that reflect operation of our old laundry and there were limitations. While we realized 11 pounds was not sufficient, restrictions were necessary because of limited productivity. For example, standard ward linen changes were not as frequent as semi-private. Today there is no difference.

The cost of steam at our hospital is now $1.15 per 1000 pounds. This indicates a reduction over previous years by reason of decrease in cost of fuel oil which offsets salary increases.

Our new figures show a decided increase in pounds processed over 1958. This reflects the addition of 250 beds and enlarged services, as well as the increase in pounds per patient day.

The cost per pound of 4.7 cents is quite favourable, particularly when one considers that building depreciation is included. At 4.5 cents in 1958, one would expect a noticeable increase in 1961. However, higher production has held the line.

The reduction in cost for 1961, other than press work, is a result of higher productivity per man hour. The increase in cost of press work is the result of lower productivity because of the reasons mentioned previously with regard to nurses' uniforms.

In every case but three, our unit price is lower than the commercial laundry price, resulting in a saving of $459.67 for a two-week period for press work alone, and an annual saving of $5,516.04. Add to this the saving that is realized on flat and tumble work at 4.5 cents and 5.0 cents per pound respectively for commercial (which figures are confirmed) as against 4.3 cents and 3.1 cents for hospital, and the overall saving is considerable.

In addition to the cost comparison there are other factors in favour of the hospital operating its own laundry. It provides absolute control over linens, through all processes; eliminates mix-ups and delays caused by outside handling; can handle special rush demands from any department; gives better control of week-end needs; gives better control over re-use and discarding of linens, to mention a few. A commercial laundry no doubt could give arguments in its favour; however, they would have to be good to convert me.

In this article I have tried to cover the areas in which I feel the hospital administrator should be vitally interested. The technical processes I have avoided. This is the responsibility of the laundry manager. That is why we hire a good one. The administrator should be prepared to give him full responsibility for the operation of his laundry, offer guidance and counsel, clarify policy and, most important, offer encouragement. In order to do this, and wisely, it is my feeling that an administrator should have at least a "talking knowledge" of the areas which I have covered. ■

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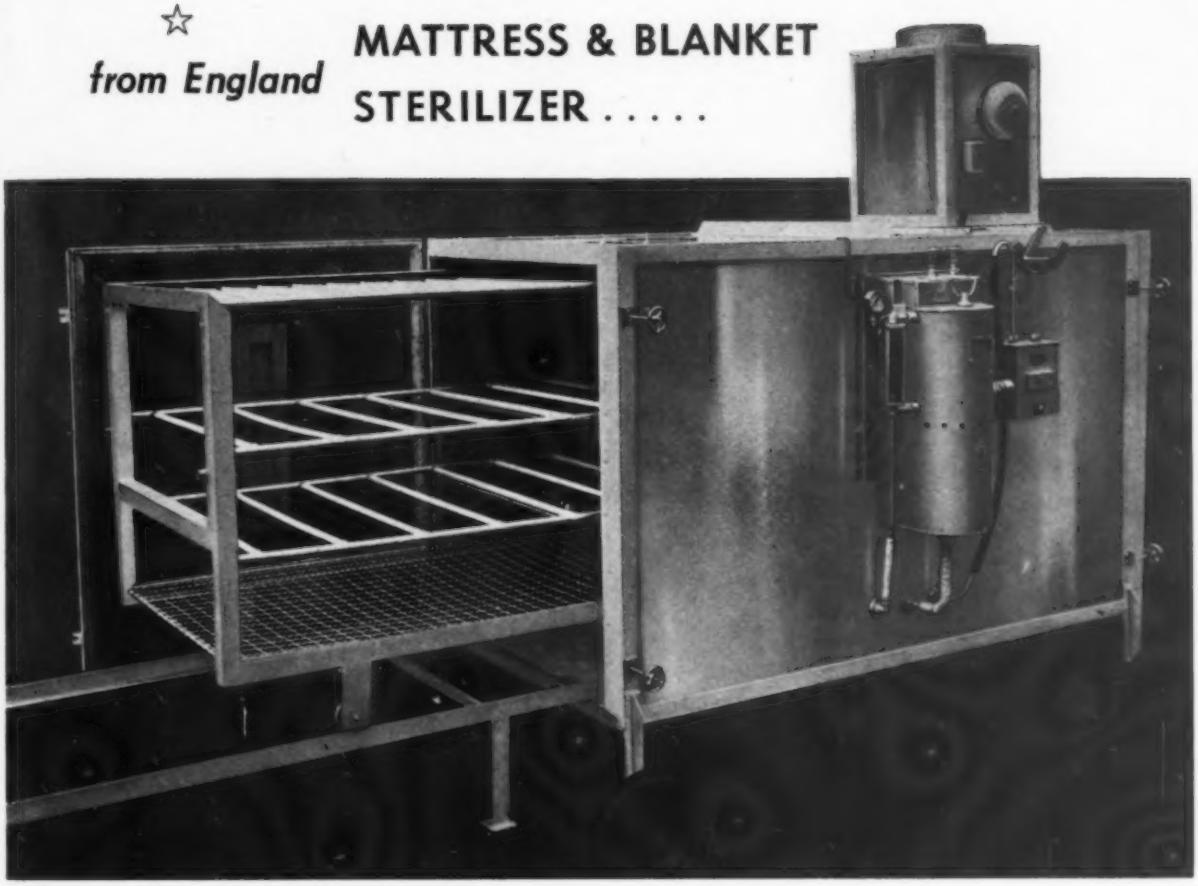

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"With the Sparkhall Sterilizer unit, using Sparkhall Fluid, blankets and every kind of woollen articles as well as spring interior and all other mattresses, bedding and clothing, toys made by patients, also objects of rubber, leather, etc. can be sterilized without damage at low cost."

Bacteriological: Reports of tests made by different independent bacteriological laboratories are available on request.

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Meat Research
(concluded from page 58)

of approximately ten days at 34 degrees F., is commonly recommended for satisfactory results and economical use of storage facilities. During aging enzymes in the meat act to break down the protein and produce the beneficial result. Tenderizers, which are readily available, contain plant enzymes which will hydrolyse protein, but they can act only on the surface they are in contact with and the tendering effect is a surface one. If they are left on too long, or too much is used, the action goes too far and flavour is affected.

Freezing at — 10 degrees F. following aging and then holding at + 10 degrees F. or lower until it is to be used may further increase tenderness.

Cooking meat of good quality is a comparatively simple procedure which for some reason or other eludes many cooks. Good quality roasts may be cooked in an oven at 300 to 325 degrees F. until cooked to the point desired. Cooking losses are greater from well-done roasts than from medium-done roasts, and from roasts cooked in a covered pan than from roasts cooked uncovered. It should be remembered that higher cooking losses mean fewer servings per pound, as purchased.

The less tender cuts of meat have given tender cooked products when cooked at a low temperature, as low as 155 degrees F. This takes a long time and the meat must be wrapped in foil or it dries out. The slow rate of heat penetration is believed responsible for the improvement in this case.

A well-browned exterior does have eye appeal and added flavour for those who receive the outside cut. The old belief that searing sealed in the juices was long ago disproved; it actually increases the loss from the meat. When extra browning is insisted on, it is wise to use a high temperature only long enough to give the desired effect, then cool the oven to 300 to 325 degrees F. and finish cooking the roast. This method requires more attention and is apt to be misused so that the cooked product is smaller and less tender than it should be.

It is not the purpose of this article to discuss variety in meat preparation. The general principle must hold for all meat cookery. High temperatures result in shrinkage of the meat and greater toughness, which in turn means less cooked meat which is also less desirable to eat.

Early studies could report findings in terms of judge's opinions only. While organoleptic tests remain the supreme measure, they are more standardized today. In addition, instruments have been developed for objective testing which give measurable results. At the present time attention is being given to the development of tests which would employ a biopsy sample for determining tenderness. Such a test would make it possible to save animals, which have very tender muscle, from slaughter and use them for breeding which might help to elucidate the problem.

Why some animals are more tender than other animals, raised under similar conditions, still eludes us. The solution of this question is of economic importance and warrants the emphasis which is being placed on research, related to meat quality. ■

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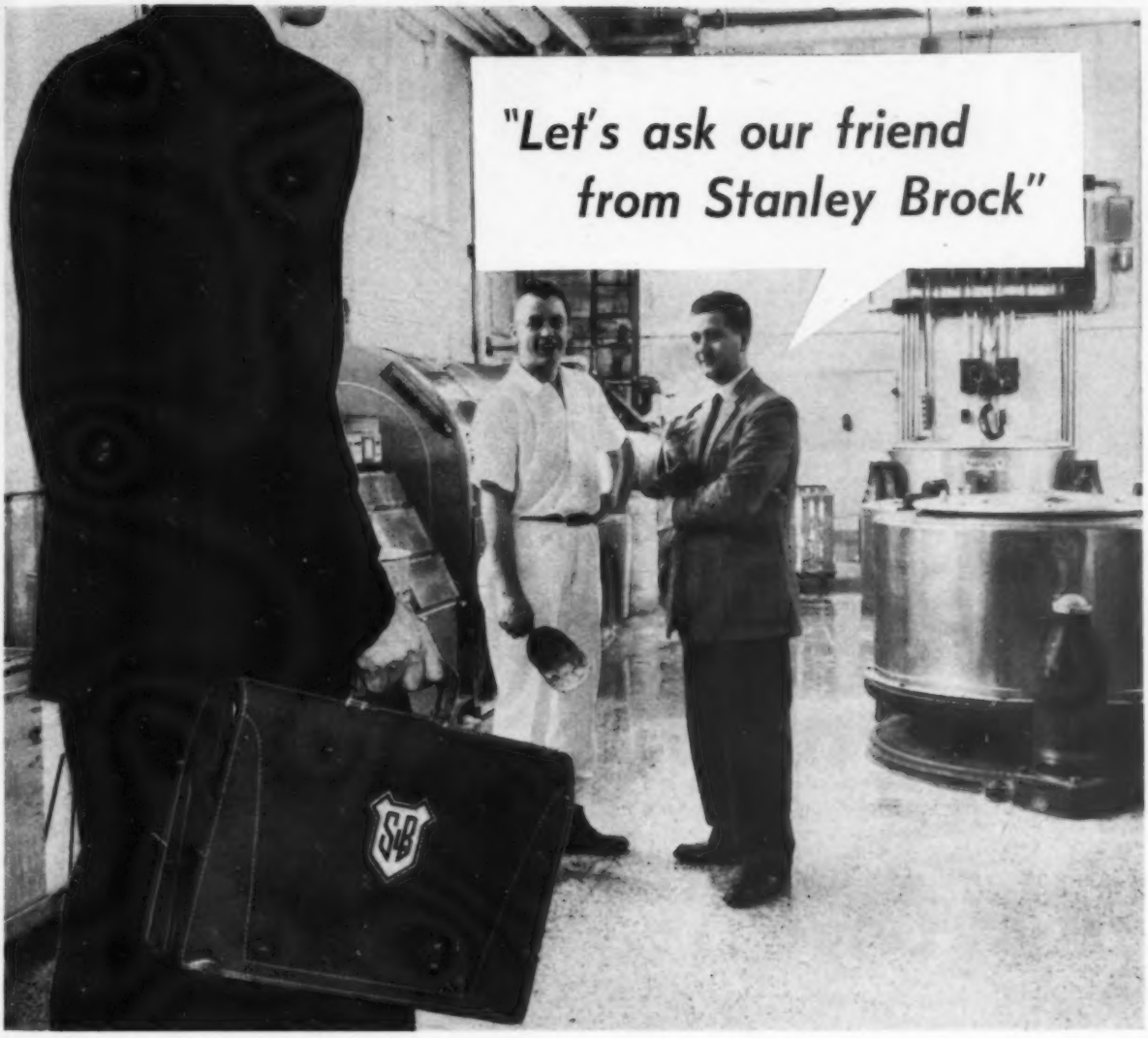

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WINNIPEG REGINA CALGARY EDMONTON VANCOUVER

Orthoptic Clinic at University Hospital, Saskatoon

FROM the earliest times man has depended on his eyes for survival. With them he has hunted for his food, his foes, and through them he has communicated much of his inner thoughts to others.

One of the earliest theories of vision was that it was a form of energy by which rays of light were thrown by the observer to strike external objects, and then reflected back again. This theory tended to enhance one of the most ancient superstitions—the almost universal belief in the evil eye. The evil eye was always considered dangerous and this became intensified if the eyes were crossed. In the past, to cast an evil eye, or to fascinate, as it was called, could well merit death at the stake. Even today, old superstitions persist and one may still encounter the child who has her ears pierced in order to cure her crossed eyes.

This condition of crossed eyes, or squint, may have a very significant effect upon a child's personality. A child who is lame, for instance, is looked upon with compassion but this emotion is rarely felt for the child with a squint. At school he is often subject to unpleasant taunts, and made to feel different from other children.

Many years of thought and skill have been employed in evolving the accurate diagnosis and treatment of this unsightly condition; for unfortunately, besides the appearance of the squint, there is also the invariable deterioration of vision in the squinting eye, accompanied by the loss, or lack of development of the ability to use eyes together in unified or binocular single vision.

In the Western world, and particularly in Great Britain, there has been a steady growth of clinics working under the direction of ophthalmologists, in which specially trained staff aid in diagnosis and treatment of all eye muscle defects, and the orthoptist, as she is known, has now become an integral part of the staff in eye clinics and hospitals.

The ophthalmologist, having made his preliminary examination and having ordered spectacles whenever necessary, refers the child to the orthoptic clinic. In her work the orthoptist is responsible for assessing the vision of the child, making note of any restriction of action of the eye muscles, and estimating the presence and strength of the binocular vision. In young children this can be very time-consuming, especially in a busy clinic, but the orthoptist has time in the quiet atmosphere of her clinic to gain the confidence and co-operation of shy, often apprehensive children. The various coloured pictures and slides used in her investigations are invaluable in securing their interest and collecting the required information.

In her talks with the young child and the parents, the orthoptist learns of the family background and any emotional problems which may influence the squint and its future treatment. She acts as a valuable link between the child, the parents and the ophthalmologist.

One of the main tasks of the orthoptist is the treatment of the low vision which is frequently found in the squinting eye through lack of use. This condition gives rise to the term "lazy eye", which is often applied to a squint. She supervises the covering of the non-squinting eye, in order that function may be restored in the squinting eye, for unless good vision is secured in this eye in early childhood, a permanent loss of vision in that eye may result. This could have a disastrous effect if, in later life, the vision were lost in the better eye due to accident or disease.

In the clinic, diagnosis and re-education of binocular vision is carried out by the orthoptist. This later training is of a remedial nature, and may be employed alone in the treatment of the squint, or combined with surgery on the eye muscles. Adult patients, as well as children, are also treated in the clinic, a number of whom have a deviation brought about by a paralysis of one or more of the eye muscles, caused by various diseases or by trauma. One of the most disturbing symptoms is the interference with binocular function, and subsequent double vision. Another large group of patients are those suffering from symptoms of eye strain and difficulty with close work which may be attributed to an imbalance of the ocular muscles. A course of treatment is often advocated for these patients to increase the binocular function with a subsequent relief of symptoms.

From the opening of a small training school for British orthoptists in London in 1930, over 400 are now practising all over the world. Twenty of these are working in the United States and six in Canada. The great distances between clinics in the United States and Canada has made the growth of an Orthoptic Society here a difficult problem, but with a growing demand for orthoptists, and the need for more training schools and teaching staff, it is hoped that in the near future, a Canadian Society will be formed. The orthoptic clinic in the University Hospital, Saskatoon, Sask., was first opened in September, 1958, with Miss Bower as the first orthoptist, and since that time approximately 2,600 patients have attended. Plans have been made to start a training school at the hospital in the near future. ■

Reprinted from an article in the University Hospital Bulletin. The author, Naomi W. Boyle, is orthoptist at the University Hospital, Saskatoon.

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*Carl W. Walter, M.D., "Aseptic Treatment of Wounds" (New York: The Macmillan Company, 1954), P. 172

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From: "Enter Fluorocarbon Film", Modern Packaging Magazine, November 1957. Complete article available upon request.

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Water

(concluded from page 66)

formed. This lime soap which is exactly what it is, does damage in three ways: (a) excessive use of product; (b) loss of quality in work; and (c) lime soap deposits on the equipment.

Excessive Use of Products: As you know this is a direct result of lime soap formation in water containing hardness salts. The lime soap formed is obviously wasteful of supplies as it uses the soap that should be used for washing. Our research laboratory has conducted tests which show that 100 gallons of 10 grain hardness water will take one and a half pounds of pure soap just to soften the water by forming this lime soap.

Let us just think about this for a moment. Take one 42 x 84 machine being supplied with 10 grain water. Assume a two suds formula and eight loads a day. The cost of soap being wasted by hardness will be some $500 per year.

It is impossible, therefore, when washing in hard water to get sufficient suds without first overcoming the hardness present in the water by using an excessive amount of soap and alkali.

Loss of Quality in Work: Whenever we wash with soap in hard water it remains as a deposit on the linen being washed. Work takes on a grey colour and often an objectionable odour develops. This effect builds up over a period and will soon produce stiff grey linen which will give off a cloud of dust if shaken.

Lime Soap Deposits on Machinery: This lime soap gets everywhere. Most of us have probably seen lime soap build up on a washwheel. A sludge appears, and if no corrective action is taken it soon forms a crust which is not easy to remove. Pieces of encrusted lime soap show up on linen when pressed. This condition of the washwheel is serious, but the wheel can be cleaned by following a lengthy process using oxalic acid. But what of the areas that you cannot see—the pipes, thermometers and water level gauges? All these become encrusted with the lime soap if hard water is used for any length of time.

To counteract a hard water supply, there are a number of courses which it is possible to adopt. The most obvious, of course, is to install a zeolite water softener. As water passes through the zeolite bed, the calcium and magnesium salts are retained. Periodically the bed must be washed and a brine solution passed back through it so as to regenerate the water softening power of the zeolite.

If this regeneration is not carried out efficiently at sufficiently frequent intervals, trouble due to hard water will result. Your first indication in the laundry may be complaints at finishing or from the floors, by which time a belated correction may have been made to the operation of the softener. Obviously you should check the condition of your water supply at regular intervals.

Water can be softened down to two to three grains of hardness per gallon by the use of the lime-soda ash process. This particular process was used some years ago, but it is awkward and certainly time consuming. To the best of my knowledge, very few plants, if any, use this particular process today.

Some of you may have to work with water which is not softened. Maybe your plant is scheduled for renewal, but the natural supply is not so hard that your authority will sanction a softener. All of you now and then will have to work with hard water the odd day, while engineering repairs and renewals are effective. Now what can be done? Two principal points emerge.

1. Use your soap and alkali correctly. More product—soap or alkali—must be used in hard water to obtain soft water results.

2. Operate special hard water wash formulae or use a built synthetic.

As you know from experience, there are other impurities in water besides hardness salts, such as suspended and insoluble matter which should be filtered out. This may take the form of a simple filtration by straining the water through a proper bed to remove the suspended matter or may also involve the use of such things as alum which holds the finer divided particles. Then filtration through a proper bed is used. Special filtration methods can be designed to remove not only suspended matter, but also colour impurities, bacteria, and manganese.

Another troublesome impurity found in water is iron. If you have iron in your water supply, the best remedy is a rust removing sour, but one tip is worth remembering: after a period of shutdown, *e.g.*, a week-end, it is a good plan to flush all pipes for a short while through the machines with open dump valves. Any accumulated rust will be lost in this first flush.

Since you use more water in your laundry than any other supply, a working understanding of water is a necessity. Know what is in the water you use in your laundry. ■

New Hospital Projects Outlined in B.C.

Seven hospital projects, totalling an estimated two and a half million dollars in building costs, have been approved by the government of British Columbia. The government's formula of cost sharing is 50 per cent of the approved costs of major construction and one-third of the approved costs of equipment, furnishings and building improvements.

The projects included in the current announcement are:

Approval-in-principle for the Ladysmith and District General Hospital, Ladysmith, to construct an addition for ten beds.

Approval-in-principle for the Queen Charlotte Islands General Hospital, Queen Charlotte City, to construct a staff residence.

Approval-in-principle for the Surrey Memorial Hospital, North Surrey, for expansion of the heating plant with an additional boiler.

Approval to develop working drawings for a new laundry and maintenance building at the Royal Columbian Hospital, New Westminster.

Approval to develop working drawings for the McBride and District Hospital, McBride, for a new hospital.

Approval to call for tenders for the construction of a new wing for a clinical laboratory, and a new laundry building, at St. Paul's Hospital, Vancouver.

Approval-in-principle for addition and renovations to the Powell River General Hospital, Powell River.

Tools

What are the writer's tools? A wide range of language, for variety and to avoid the commonplace; active verbs, to keep the action moving; similes, which make words paint a thousand pictures; metaphor and parable, to make meanings clear, and rhythm, which contributes to smooth, easy reading.

The Royal Bank of Canada Monthly Letter

"Oh no... not another compress..."

I've got three of them already. "What in the world has happened to progress?" Steady, girl... steady. Maybe it's not too awfully bad. Maybe it needs just a little pad. "Complete leg and thigh? Two of them?" Well, this day is certainly shot—these things should be condemned... I'll surely be if they're not. "Why in the world don't they get something new? You say there is? We have? We do?"

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How NOT to get Shocked

How can a person get a shock from using an electric drill, or other tools and appliances?

First, there must be a defect in the tool. Because of this defect, electric current can make the metal frame of the tool alive with electricity. Secondly, the person using the defective tool must be in contact with the ground. Since electricity is always trying to flow to the ground, the uncontrolled electric current on the metal frame of the drill will flow through the user's body to the ground.

The person does not necessarily have to be in direct contact with the ground (earth). If his body contacts a water pipe or any other metal object that makes contact with the ground, the stray current will flow through his body, then through the metal pathway to the ground.

Another possible way to get a shock that may be fatal is when the user of defective electrical equipment makes contact with a second piece of faulty electrical equipment. For example, if a housewife is using a defective vacuum cleaner and touches the metal standard of a defective floor lamp, her body becomes the pathway for the stray current between these two pieces of defective equipment.

The following precautions will protect you from electric shock when using electrical tools and equipment:

1. Replace electrical cords that have frayed or worn insulation, exposing the conductors;
2. Replace broken or cracked plugs on appliance, lamp or extension cords;
3. Repair defective electrical equipment (recognized by a slight tingling shock) at once. Do not delay. The next shock may be fatal.
4. Ground electrical equipment. All electrical tools (drills, saws, sanders, et cetera) and electrical appliances (washing machines, dryers, et cetera) should be grounded. You never know when an electrical tool or appliance becomes defective.

Most new electrical tools and equipment now use a three-conductor cord. If a defect develops and the appliance is connected to a three-wire, 120 volt electrical circuit, the stray current will use this third wire rather than the user's body, because this wire is the path of least resistance to earth.

Farm Safety Review.

New Hospital at Inuvik

A newly constructed 120-bed hospital serving an area of 370,000 square miles with an approximate population of 5,500 in the Northwest Territories and the Western Arctic has just been opened at Inuvik. The cost of the hospital was $2,000,000 and it will be available both for T.B. treatment and for general medical and surgical cases.

The hospital includes such facilities as operating and case rooms, blood bank, nursery, laboratory and pharmacy and it will be staffed by Indian and Northern Health Services personnel. When special medical-surgical treatments are called for, patients will be transferred to hospitals in the south with requisite facilities.

Chaos often breeds life, when order breeds habit.—*Henry Adams*

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books received

HOSPITAL ABSTRACTS, published monthly by Her Majesty's Stationery Office, London, England. Price annual subscription £3, 4s, including postage to any destination. Subscriptions and orders from overseas should be addressed to H.M. Stationery Office, P.O. Box 569, London, S.E. 1.

In addition to books, pamphlets, and reports, many hundreds of articles are published every year in periodicals from all parts of the world, and in many languages, which add significantly to knowledge on all aspects of hospitals and hospital administration. Even if there were no language difficulties, it would still be impossible for the hospital expert to read everything of importance in his own special subject. *Hospital Abstracts*, prepared by the Ministry of Health in London, offers a solution to this problem. This service is based on the Ministry's library, with its comprehensive collection of journals and other literature on all aspects of hospitals, and aims to provide summaries of important periodical articles and other publications.

PEDIATRIC NURSING. Fourth edition. By Gladys S. Benz, R.N., M.A. Published in the United States by The C. V. Mosby Company, St. Louis, Mo., 1960. Pp. 572. Illus. Price $8.00.

The nurse working with children and their parents in either the hospital or the community will be interested in this comprehensive book on the care of children.

The book is divided into six large units. In the first unit the necessary skills required in child care are discussed. The ability to see things through the eyes of a child is stressed as an essential quality of the paediatric nurse. Safety precautions, fluid balance, how to meet the child's basic needs, care during special treatments, the admission of the child to hospital and home care of the sick child are a few of the topics developed.

The second unit on growth and development is excellent. Illustrations, graphs, and appropriate examples supplement a well constructed and concise text. The author emphasizes the individuality of each child as she outlines the normal patterns of physical and mental growth.

The care of the newborn, descriptions, current treatment and nursing care of the various conditions affecting children, and a history of paediatrics are developed in the following units.

A bibliography and a set of review questions complete each unit.

GERIATRIC NURSING. Third edition. By Kathleen Newton, R.N., M.A. Published in the United States by The C. V. Mosby Company, St. Louis, Mo., 1960. Pp. 483. Illus. Price $6.50.

The belief that "old age can be satisfying and need not be a period of sitting around waiting for the inevitable" is emphasized throughout this book on the care of the aged.

The book is divided into three units. The first is concerned with presenting a general background of the older person. The author outlines certain problems experienced by the older member in our society in the areas of basic needs, housing, economic security and employment. The second unit considers the nutrition and general hygiene of this age group. In the final section, the clinical conditions affecting the older person are described. The nursing care and current forms of treatment are well developed here.

Health agencies, homes for the aged, hospital medical-surgical units and schools of nursing would be well advised to add this valuable book to their libraries. Professional and non-professional staff will find practical solutions to the problems which arise when caring for the aged.

First Award in Ophthalmic Nursing

The first ophthalmic nursing prize in Canada has been awarded to Mrs. Lilija Treimanis, a graduate of the School of Nursing, Toronto General Hospital. This prize is to be known as the "Lewis Miller Wood Memorial Award." It has been established by the Canadian National Institute For The Blind in memory of their former president, the late Lewis Miller Wood, Esq. Miss Jean Wood, Mr. Wood's sister, provided the first award.

The prize is to be awarded annually to an undergraduate or graduate nurse in the Toronto General Hospital for the advancement of eye nursing care. The prize permits the recipient to study for a period in one of the larger ophthalmic centres.

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Advertisements for insertion should be mailed to Canadian Hospital, 25 Imperial St., Toronto 7, Ontario. Rates for classified advertisements are as follows:

$3.75 per column inch of fraction thereof, minimum charge $3.75. Display advertisements, set in a box, may be requested on advertisements of 2 inches or larger at no additional charge, ¼ page display advertisement—$25.00. Advertisements must be received by the first of the month to appear in that month's issue.

Medical Record Librarian Wanted

For 75 bed hospital. Salary according to qualifications and experience. Apply to Superintendent,

Carleton Memorial Hospital, Woodstock, New Brunswick.

Medical Social Worker With University Preparation Required to head new department From July 1, 1961 BRANDON GENERAL HOSPITAL Salary commensurate with training and experience

APPLY TO: **PERSONNEL OFFICER BOX 280, BRANDON, MANITOBA.**

RESIDENT DOCTOR REQUIRED

A Resident doctor for New World Island, north-east coast of Newfoundland, to serve a population of 4,000 people.

To work in close association with staff of Notre Dame Bay Memorial Hospital on immediately adjacent island.

Remuneration: $10,000.00 per annum guaranteed and paid through Notre Dame Bay Memorial Hospital office, plus full maintenance, rent-free house, surgery and transportation.

Reply giving marital status, background and references to J. M. Olds, M.D., F.A.C.S., Twillingate, Newfoundland.

QUALIFIED DIETITIAN

required as Assistant in 170 bed hospital in Okanagan Valley. Ten paid statutory holidays, 4 weeks' vacation, Medical and Superannuation plans.

Apply to:

Administrator, Kelowna General Hospital, Kelowna, B.C.

Director of Nursing

Applications are invited for the position of Director of Nursing for the Vernon Jubilee Hospital, Vernon, B.C. This hospital, situated in the Okanagan Valley, is a modern, 105 bed, fully accredited hospital, expanding to 170 beds within two years. Successful applicant will be expected to assist with the planning of the nursing department of the new addition. Vacancy open June 1st to July 1st. Salary open. Applicant should state in first letter, age, marital status, detailed history of experience and qualifications, and professional and personal references.

Address applications to:

Mrs. E. Whitehead, c/o Vernon Jubilee Hospital, Vernon, B.C.

MEDICAL DIRECTOR

For a general hospital now expanding to 450 beds, situated in the Toronto area. Preference will be given to applicants who have had experience in the administration field and graduates of hospital management courses, either through the University or Extension courses.

Apply to Box 515 S, Canadian Hospital, 25 Imperial St., Toronto 7, Ont.

Medical Records Librarian Required

for 200-bed hospital, capable of direction, control, and administration of department. Apply by letter, stating full particulars to:

W. A Hume, Superintendent, Orillia Soldiers' Memorial Hospital, Orillia, Ontario.

Medical Records Librarian Required

At Prince George Regional Hospital located in Central B.C. Applicant must be capable of organizing department to Accredited Standards. Basic salary $300.00 per month with annual increments. One-way fare refunded after one year's satisfactory service. Excellent working conditions. New 125 bed hospital with extension program planned shortly. Accommodation available in Nurses' Residence at reasonable rate. **Apply to: Administrator, Prince George Regional Hospital, Prince George, B.C.**

Dietitians

An opportunity for a different type of dietetic experience. Beginning salary $3,960 per annum. Must be eligible for C.D.A. membership. All letters of enquiry answered. Apply to:

Personnel Director,
Vancouver General Hospital
Vancouver 9, B.C.

Medical Records Librarian Wanted

to assume the responsibility of the records department in a 160 bed general hospital. For further particulars please reply to Administrator,

Kirkland and District Hospital,
Kirkland Lake, Ontario

REGISTERED MEDICAL RECORD LIBRARIAN REQUIRED

for interesting supervisory position in training program for medical record personnel.

Salary commensurate with experience and training.

Apply, giving complete details regarding experience, training and salary expected to **Box 504 C, Canadian Hospital, 25 Imperial St., Toronto 7, Ontario.**

Medical Superintendent
Hamilton General Hospitals
(Mountain Units)

Applications are invited for the above position, which will involve the medical administration of the institution, under the Director of Hospitals. Applicant must have a medical degree and training in Hospital Administration or equivalent experience.

The Hamilton General is one of the largest in Canada, is staffed and equipped for every phase of modern hospital work, and has plans for early expansion.

For the person who can qualify this is an attractive and challenging opportunity. Salary open.

Applicants should state qualifications, experience, age, salary expectations, and when interview would be convenient. Please include photograph. All applications will be treated in strict confidence and should be addressed to:

Mr. T. A. Irwin, Chairman,
Board of Governors,
Hamilton General Hospital,
Barton Street East,
Hamilton, Ontario,
Canada.

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1 Canadian retron ironer, steam-heated, 85", excellent condition.

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1 QUALIFIED CLINICAL INSTRUCTOR FOR SURGERY

Gross Salary Range: $3,480 - $4,050 in accordance with experience.

Full Civil Service Benefits. Accommodations available in modern residence. Applications are also invited from Registered Nurses for general duty. For further information apply to Director of Nursing, Victoria General Hospital, Halifax, Nova Scotia.

Application Forms may be obtained from the Nova Scotia Civil Service Commission, P.O. Box 943, Provincial Administration Building, Halifax, Nova Scotia.

Associate Director of Nursing Education

Applications are invited for the position of Associate Director of Nursing Education for a School of Nursing with approximately 200 students.

Programme
3-year course with Nurse Interne plan.

Qualifications
Baccalaureate degree desirable, but not essential if adequate post graduate experience in nursing education or if holding university certificate or diploma in the field of nursing education.

Salary
$3870 - $4200 annum.

Personnel Policies
5-day week, 12 statutory holidays, 15 working days' annual leave, good sick leave allowance, pensionable service without contributions.

Cost of transportation to Newfoundland will be paid from any point in Canada or United Kingdom.

Apply to: **Director of Nursing, General Hospital, St. John's, Nfld.**

Qualified Assistant Dietitian

For 300 bed hospital. Degree in home economics, household economics or household science. Plus one year directed post-training or 2 years' hospital experience are essential. Expansion program planned for 600 beds. Salary commensurate with qualifications and experience. 40 hour week and 3 weeks vacation.

Apply to: **Chief Dietitian, The Wellesley Hospital, 160 Wellesley St. E., Toronto 5, Ontario.**

Qualified
Hospital Administrator

Applications are invited for the position of Administrator for 104 bed Chronic and Convalescent Hospital specializing in Rehabilitation. Required to assume position approximately June 1st, 1961.

Apply giving complete details regarding qualifications, experience and salary expected to:

Chairman Hospital Board,
Gorge Road Hospital,
63 Gorge Road East,
Victoria, B.C.

Dietitians Required

Applications are invited from dietitians with membership in the Canadian Dietetic Association for the posts of Chief Dietitian and two assistant dietitians at the General Hospital, St. John's, Nfld.

This is a 456-bed acute General Hospital which has recently enlarged its Dietary Department and Cafeteria.

Transportation will be provided to Newfoundland for the successful applicants. Interested parties are invited to write giving full details and salary expected, to:-

The Superintendent,
The General Hospital,
St. John's.

Director of Nursing

Required for modern, medium-sized hospital in Western Canada. Responsible position. Apply in writing, stating experience and salary expected to:

Box 501 V, Canadian Hospital, 25 Imperial St., Toronto 7.

Dietitian

Applications are invited for the position of Dietitian at the Victoria Union Hospital, Prince Albert, Saskatchewan. Excellent facilities built in 1959 for food service. **Apply, stating qualifications, to H. Bassett, Administrator.**

Assistant Administrator Position Wanted

Chartered Accountant, Queens University, age 36, holding position as Treasurer and Director of large Toronto distributing company. Would like position as Assistant Administrator of hospital, with view of taking hospital administration course.

Please reply advising approximate salary range, to Box 527 D, Canadian Hospital, 25 Imperial St., Toronto 7, Ont.

SUPPLIERS TELL US—

Interesting items from the news releases of hospital suppliers

By C.A.E.

Edwards of Canada Elects Top Executives

At a recent meeting of the board of directors of Edwards of Canada Limited, R. S. Edwards was elected president and will continue in his capacity as chairman of the board.

Mr. G. P. Nelson was elected managing director and will continue as vice president.

Mr. Edwards, whose grandfather originally founded the company in 1872, is a past president of the National Electrical Manufacturers Association.

R. S. Edwards

Prior to joining the Edwards Company in 1949, Mr. Nelson attended Rensselaer Polytechnic Institute from which he received a Bachelor of Science degree in management engineering.

In October, 1950, he transferred from Edwards Co. Inc., Norwalk, Conn., to Edwards of Canada Limited. He was appointed administrative assistant in 1952 and was elected vice president in 1956.

Edwards of Canada Limited manufacture a complete line of electrical signalling communication, and control equipment for hospitals, schools, hotels, industry and transportation.

Marconi Image Amplifier Has Many New Features

There is a very substantial market for the Marconi X-Ray Image Amplifier in North America reports Mr. C. B. French, President of X-Ray & Radium Ltd., Toronto. Mr. French, accompanied by vice-president and sales manager, Mr. H. M. McLean, spent a week in England recently discussing the North American market potential with executives of Marconi Instruments Ltd., at St. Albans.

Following a recent demonstration of the equipment at the Toronto General Hospital, Canadian medical men are said to be very enthusiastic about its potentialities. They believe it opens up new diagnostic possibilities in a number of fields, for example in brain and heart surgery.

Apart from the added safety for the patient, who is exposed to much less radiation than in conventional screening, the Marconi Image Amplifier provides a more convenient and simpler system for doctors, surgeons and radiologists. It presents the fluoroscopic image of the part under examination on large size television monitors.

The excellent definition reveals the image details with incomparable clarity in normal room lighting; as a result, dark adaptation is unnecessary. A cine-camera can be attached and a continuous record of the large fluoroscopic images made, so that the results of the examination are readily available.

The equipment is at work in a number of hospitals in England, and in Canada.

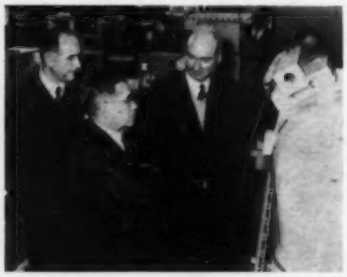


Photo taken at the St. Albans works of Marconi Instruments Ltd. Mr. C. B. French, president of X-Ray and Radium Ltd.; and Mr. H. M. McLean, vice president and sales manager; discussing a Marconi X-Ray Image Amplifier for a Montreal hospital with Mr. E. Garthwaite (centre), chief engineer of Marconi Instruments Ltd.

New Design Drain Shelves For Beatty "Lift-Out-Tanks" Fryers

Two types of drain shelves for Beatty No. 2 Series fryers have just been introduced.

Lift-Off Type, as shown on right of illustration, is a single shelf, 12½" wide x 15¾", complete with removable draining screen, which allows fried food to drain properly due to clearance space under it and slope which allows the return of excess fat to fryer. It is available in two finishes, white nickel with polished edges, or full stainless steel. It can be used on either side of fryer and lifts off to allow removal of fryer tank.

The 3 Deck Type is shown at the left side of illustration. Top draining shelf and strainer are similar to lift off type except that it is hinged to allow it to swing up clear of fryer to allow fry tank removal. Remainder of unit is composed of stainless steel top frame including back splasher and two lower shelves. All are supported by 1¼" diameter tubular legs on one side and by the fryer itself on the other.

Full information from James Stewart Manufacturing Co., Ltd., Penetanguishene, Ont.

Legion Dri Hot Plates Available in Canada

Gaunt Steel Products announce that the well-known Legion Dri Hot Plates are now assembled and polished in Canada.

Using a new technique, the plate holder and pellet holder are polished, then nickel brazed in a hydrogen furnace at a temperature of 2100° Fahrenheit.

The Canadian unit is guaran-

(continued on page 118)

NO. 2 IN A SERIES

This is the second in a series of articles on High Vacuum Sterilization and how it brings greater safety and efficiency to hospital sterilization. Its author is Richard D. Castle, head of Research and Development, Wilmot Castle Company, Rochester, N.Y. Working with the Drayton Regulator & Instrument Co., Ltd., of England, Castle has developed the OrthoVac* High Vacuum Sterilizer. First models will be installed in U. S. hospitals this year.

The Essentials of HIGH VACUUM Sterilization

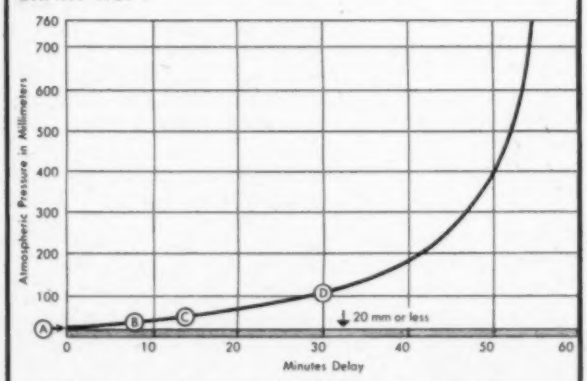
by Richard D. Castle

● The advent of High Vacuum Sterilization brings four major advantages to hospital "dry goods" sterilization. The first is *speed*. Using the High Vacuum System, a typical "dry goods" cycle is run in 15 minutes compared to conventional cycles of one to two hours. A second advantage is *safety*. With the drawing of a near-absolute vacuum, uniformity of temperature throughout the load is obtained within a predictable period. Common errors in packaging and loading are no longer critical. Sterilization becomes a mathematical certainty. Sterilizers may be *loaded to capacity*—an increase of approximately 25% for every existing "dry goods" sterilizer. Finally, there is greater *preservation of fabrics* with reduced exposure time.

● There are certain essentials to the practical operation of a High Vacuum System. Success depends on removal of *enough air* so there can be no variation in the time necessary for steam-air interchange. This requires a vacuum of less than 20mm Hg. abs. The Castle-Drayton OrthoVac System uses a high-efficiency *oil-seal vacuum pump* to draw such vacuum. Steam penetration and load heat-up are thereafter practically instantaneous. An oil-seal pump is used because it is fast and provides considerable reserve capacity in the critical range as a safety factor. On the other hand, water-seal pumps tend to drop in efficiency as they approach the critical range and are dependent on water supply temperature.

● The importance of adequate vacuum is shown in Chart 1., which indicates relationship of speed of heating and degree of vacuum obtained.

CHART NO. 1



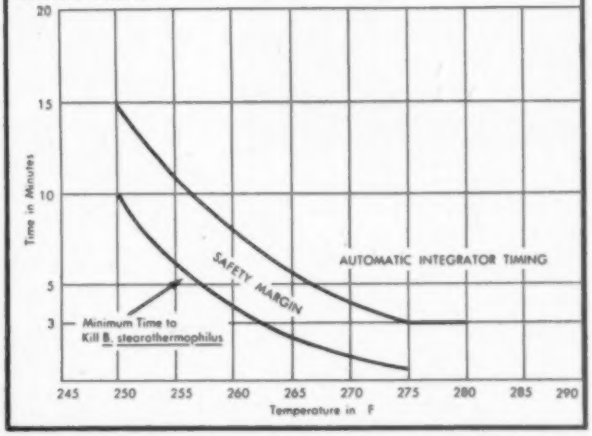
Ⓐ 20 mm Vacuum (29.2" Hg.)–steam heats to center with no delay
Ⓑ 40 mm Vacuum (28.4" Hg.)–steam heats to center after 8 minute delay
Ⓒ 60 mm Vacuum (27.6" Hg.)–steam heats to center after 15 minute delay
Ⓓ 100 mm Vacuum (26.0" Hg.)–steam heats to center after 30 minute delay

● For efficiency and safety, *the same degree of vacuum* must be drawn during each cycle. To guarantee this the OrthoVac System employs an exclusive *barometrically compensated absolute pressure switch*. This device safeguards the cycle by automatically compensating for height of the sterilizer above sea level and daily barometric pressure fluctuations. The need for manual adjustments to allow for critical changes in ambient pressure is eliminated.

● With the establishing of a near-absolute vacuum, it is possible, for the first time, to safely determine the time required for all parts of a load to reach killing temperature—regardless of size of load or manner of packaging.

● Once known, this permits use of the exclusive OrthoVac *Time-Temperature Integrator* in the control of the timing phase. Whatever temperature has been pre-selected at 250° F. or over, the Integrator automatically selects the exact time necessary for kill, based on established bacteriological law. The operator selects temperature only, leaving correct selection of exposure period to the sterilizer's automatic control system. Recording instruments monitor successful attainment of sterilizing conditions. Chance of human error in exposure settings is eliminated. Chart 2. shows how Integrator has been engineered to follow established bacterial kill time, while adding a built-in safety margin.

CHART NO. 2



● In operation, the Integrator automatically compensates for temperature variations due to rise or drop of steam pressure or other causes. Should temperature drop within the 275-250° F. range, the *exposure period is automatically extended for the time required at the lower temperature*. Other high vacuum systems rely on clock mechanisms which necessitate recycling of the entire timing phase when temperatures fall below the pre-set level. This not only lengthens total cycle time, but accelerates deterioration of fabrics and rubber.

● *First production models of the OrthoVac Sterilizer will be installed in hospitals this year. Based on Drayton's experience in England, the OrthoVac System has been developed as a control console to permit on-the-job conversion of many existing "downward displacement" sterilizers. The console design will allow hospitals to convert present sterilizers to the safer, more efficient High Vacuum System without spending the additional funds necessary to purchase a complete new sterilizer, or altering present sterilizer facilities to accommodate additional sterilizing equipment.*

For further information on OrthoVac write for Bulletin H-283.

WILMOT CASTLE COMPANY, 1105 E. Henrietta Rd., Rochester 18, New York

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Suppliers Tell Us —

(continued from page 116)

teed for twelve months against leakage under pellet holder, even if dropped or otherwise damaged in normal kitchen operation; against increased staining at point of braze; against melting or loosening of braze by any heat source in kitchen, and to 1600° Fahrenheit in any heat source. N.B. Hot Top Ranges do not exceed 1100° Fahrenheit.

For complete details write to Gaunt Steel Products Ltd., 30 Front St. West, Toronto 1.

Smallest Transmitter For Personal Call System

A battery-operated "baby" transmitter, weighing only 3 lbs., is the nucleus of a personal call system newly developed by Multitone of Canada Ltd.

Fully transistorized, and therefore independent of the power supply, the new system satisfies the need for an economical pocket paging system in smaller hospitals, libraries, offices, restaurants and hotels.

Depending upon the layout of the premises "radio" coverage varies from 40,000 sq. ft. to 300,000 sq. ft. The 15-channel arrangement provides either speech or private signal for a total of 15 personnel carrying pocket receivers. It is an addition to the line of larger systems manufactured by the Company.

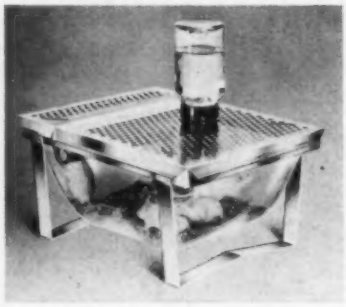
Installation is easy and economical, whether in an existing building or one under construction. Operating costs are negligible (approximately 5c a day), and no radio license is required.

Please write Multitone of Canada Ltd., 130 Merton St., Toronto 7, Ontario.

New Supports for Disposable Plastic Mouse Cages

Disposable Laboratory Cages, Inc., Chicago, has introduced a new metal support for their disposable plastic mouse cages.

The "Cleer-Vue" Cage Supports, as they are called, are of heavy gauge nickel-plated steel and measure 10½" x 8¼" x 5" overall. They effectively support the cages in suspended fashion without obstructing view of the contents.



Although the plastic cage bottoms are designed for complete disposability of cage and contents, the metal cage supports and perforated metal tops and food hoppers, may be sterilized and used indefinitely. The supports are made to nest together in order to conserve bench space. This permits a quantity of cages and supports to be kept close at hand. They are packed 10 to a carton and are available only through authorized distributors.

Write for full information and prices to Disposable Laboratory Cages, Inc., 3070 W. Grand Ave., Chicago 22, Illinois. Ask for Bulletin 152-D.

Mobile Unit of Keleket Image Intensifier

Radiologists and X-ray technicians from many hospitals visited the Keleket Image Intensifier mobile unit in Montreal and Toronto recently.

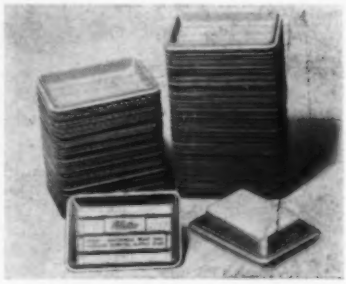
One group from Notre Dame Hospital in Montreal even brought their own patient for examination.

Here, Dr. J. L. Leger, Chief Radiologist of the Notre Dame Hospital, checks the viewing mirror of the 9 inch Image Intensifier. Earlier, Lorenzo Abbott, (on the table) had been given a barium swallow while the hospital staff examined the fluoroscopic image of the esophagial tract on the mirror, and a TV monitor. 16 mm cine pictures were also taken.

A feature of the Keleket Image Intensifier, distributed in Canada by RCA Victor Company, Ltd., is that TV or cine can be used without interrupting the fluoroscopic image on the viewing mirror. TV or cine can be brought into operation at the flick of a switch.

Chieftain Disposable Soap Dishes

An important answer to cross-contamination originating from multi-use soap dishes is the "Chieftain" disposable soap dish. The cost is so little that each patient is given a fresh, bacteria-free dish.



It may be incinerated. Projections at bottom of dish allow air circulation. It is impervious to soap and moisture. Blue, ½" high x 4⅛" wide x 3" deep.

Distributed exclusively by Fisher and Burpe, Division of American Hospital Supply Corporation (Canada) Limited.

Full particulars obtainable from any Fisher and Burpe regional office.

Johnson & Johnson Expand Quality Control Centre

In a move designed to pace the increasing range of products marketed by Johnson & Johnson Limited, the company has announced expanded facilities for quality control and product inspection in Montreal. The new facilities will be known as the Johnson & Johnson Quality Control Centre.

The new centre replaces an "in-process" inspection laboratory which has operated since 1931—marking nearly 30 years of Johnson & Johnson quality control procedures.

President William C. Brayley

(continued on page 120)

National "33"

A VERSATILE MACHINE WITH 21 TOTALS IDEAL FOR HOSPITAL ACCOUNTING

The National Class 33 accounting machine answers all hospital bookkeeping needs. One multi-part form provides patient, insurance company and hospital with a detail record of all patient's charges. Here are the outstanding National "33" features that simplify data processing in a hospital office:

21 TOTALS. Each total functions as an independent crossfooter
AUTOMATIC CLEARING of all totals in sequential order
AUTOMATIC "DETERMINATOR" initiates proper posting program
INTERCHANGEABLE PROGRAM BARS provide flexibility in design of forms
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SELECTIVE, ENFORCED DISTRIBUTION simplifies charge and credit accounting
AUTOMATIC SERIAL NUMBERING. Consecutive numbers controlled in posting
DEBIT AND CREDIT BALANCES automatically printed in separate columns
EASY ERROR CORRECTION and adjustment made with reverse key
ELECTRIC TYPEWRITER encourages full description of posting details

Look in the yellow pages for your nearest National representative. He will be pleased to give you an obligation-free demonstration to show how National can simplify bookkeeping and increase profits for you.

298

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Suppliers Tell Us —

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stated that as well as maintaining its rôle as an "in-process" inspection station, the new quality control building is considered more of an analytical laboratory where chemicals and packaging raw materials, as well as baby products, surgical dressings and pharmaceuticals can be thoroughly checked out in all stages of manufacture. Samples, representative of current production items, are constantly moved into the storage rooms and tested at different intervals.

Integrating with the new quality control centre is another laboratory located in the manufacturing area where textile products are processed. Here, cotton classing is performed and associated textile materials are inspected. In addition, other quality control stations are scattered throughout the different manufacturing areas.

Vinyl Link Floor Mats In Decorator Colours

G. H. Wood & Company Limited announce a new product—their Vinyl Link Floor Mats.

Apart from the limitless colour combinations available, the newly designed "close weave" eliminates the hazard of even the thinnest high heels catching or wedging between these closely knit links. Canadian made, from 100 per cent virgin vinyl, to meet the rigours of Canadian weather conditions, these mats will not crack or break even in sub-zero temperatures.

A unique link design provides hundreds of wiper action blades that clean the soles and heels of footwear with their resilient action.

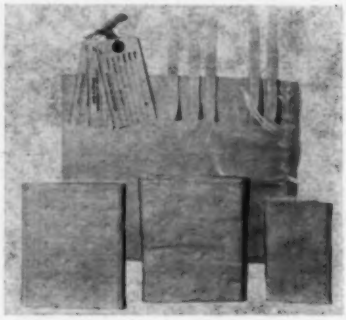
The links are woven with cadmium plated spring steel wire to assure long and rust-free life.

Wood's Vinyl Link Floor Mats are available in eight beautiful stock designs, or may be custom made to include names, initials, figures, emblems, or numbers.

Further information may be secured from G. H. Wood & Company Ltd., Toronto 18.

Disposable Shroud Kit In One Unit

Busse Hospital Disposables offers a shroud kit in one compact unit containing all the necessary items for the handling of the deceased. The adult size contains the following items: an opaque white plastic sheet 54" x 108"; a chin strap; two cellulose pads; three 36" ties; two 72" ties, and a plastic bag for personal belongings.



The mortuary will find this completely assembled unit a great convenience and time saver.

A sample kit is available from Ross Disposable Hospital Products, 345 Renforth Dr., Toronto 18.

Many Pregnant Women Suffer from Iron-deficiency Anemia

Pregnant women require more than twice as much iron as they receive from their normal diets, according to *Patterns of Disease*, monthly Parke, Davis & Company publication for physicians.

During pregnancy, a woman requires 1,200 milligrams of iron in addition to normal requirements and receives only 500 milligrams from her diet during this period.

The 700-milligram deficit must come from reserves stored in the liver, spleen and bone marrow. If these are inadequate, anemia develops. Citing a two-year study of 4,744 obstetric patients, *Patterns* reports that 20 per cent suffered from iron-deficiency anemia.

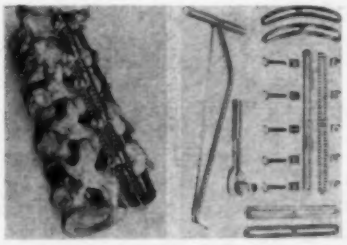
Meurig Williams Spinal Plates Offered by Orthopedic

Availability of the Meurig Williams spinal fusion plates, along with information regarding their advantages, is announced by Orthopedic Equipment Co.

To hold a dislocation of the spine in the reduced position, it is desirable to obtain the maximum fixation possibly only if all the bolts are anchored through bone. It is, therefore, essential to select plates of sufficient length to extend along at least five vertebrae for preference, which then becomes the central point of fixation.

The Meurig Williams plates have a distinct advantage because, being slotted over almost the entire length, it is possible to introduce all the fixation bolts through bone. This has not always been possible with conventional plates due to the difficulty of lining up holes in the plates opposite the spinous process. Very often two, if not more, bolts had to be introduced through the interspinous ligaments and there have been some cases of plates cutting out.

It is essential to use serrated washers and nuts with the bolts matching the serrations in the plates to insure positive fixation, thereby overcoming the natural tendency for longitudinal movement in the slotted plates, so that the spine remains stable in the reduced position. Owing to the limited operative field it is difficult to use most kinds of drills for making the holes in the spinous processes. The right-angles trocar pointed awl has been found most useful for this purpose.



Further details available from Orthopedic Equipment Co., Bourbon, Indiana.

X-Ray Reproduction Unit Features New Dry Process

A new device for the rapid reproduction of X-rays is being offered by a Toronto firm which will provide a new means for pictorial communication in reports and informal exchange of information. Utilizing heat in a dry process, the compact machine turns out a reproduction in about one minute. The result is a high quality permanent image which is not affected by humidity or heat in storage. Known as Racan-Copymate, the unit is

(concluded on page 122)

the best part of this catheter doesn't show...

DEPENDABLE PERFORMANCE

.... a built-in part

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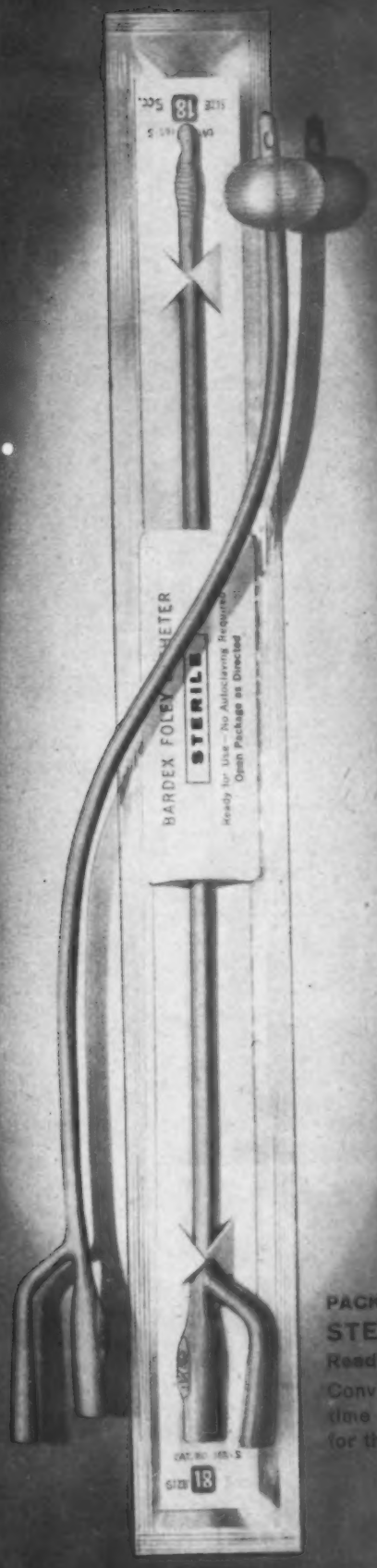
—and while it doesn't show in the picture, you can be sure that it's there



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Suppliers Tell Us —

(concluded from page 120)

desk-top size and has been specially designed to turn out high quality paper or transparency reproductions of X-ray film. The Racan-Copymate will handle sheets up to 19" in width and any desired length.

Paper reproductions have the appearance of an original radiograph as seen on the illuminator, while transparencies may be viewed directly or projected for group viewing. Both the paper and film used are manufactured specifically for X-ray reproductions by the Kalvar Corp. of New Orleans. Contrast is controlled by exposure variation to enhance important details and reduction of contrast for non-essential information.

The machine is completely self-contained. It requires no chemicals or liquids and operation is automatic by push-button. No special training or facilities are needed for operation.

Introduced in Canada by Racan Photo-Copy Corp. Ltd., 268 Merton St., Toronto 7, the Racan-Copymate supplies accurate X-ray copies for extra consultations, teaching material, insurance claims information, documentation and a wide variety of medical, industrial and business uses, while preserving the original film from loss or damage. Further information and photographs available upon request.

New Sterilon Uretheral Catheterization Pack

The Sterilon Corporation has introduced a new complete pack containing all the items necessary for one uretheral catheterization.

Called the Sterilon Cath-Pak, the unit is provided sterile, ready to use and is easily disposable. Convenient storage is assured because of the compact design of the package.

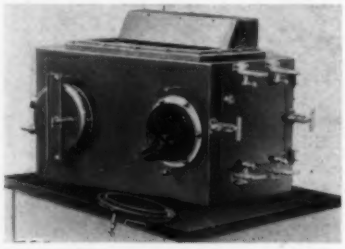
The outstanding feature of the Cath-Pak is the 500 c.c. collection bag to which is attached a Robinson 14 French smooth plastic catheter, together with a patient identification sticker and clamp. After collection, the bag can be clamped shut, forming a sealed, leak-proof container for carrying the specimen to pathology or to a disposal point.

Also included in the Cath-Pak are a cellulose pad, which can also serve as a waste wrapper after the catheterization procedure, a pair of pre-powdered gloves, a perineal drape, four cotton balls and an application of lubricating jelly. The outer wrap of the Cath-Pak is used as a sterile field on which to prepare component parts.

For further information on Sterilon's Cath-Pak, contact Sterilon Corporation, 500 Northland Ave., Buffalo 11, N.Y.

Fisher Isolation Cabinet is Germ-Free

The Fisher Isolator/Lab is a moderately-priced, self-contained, completely enclosed lab-within-lab that protects experimental cultures and clinical specimens from contamination, simultaneously guards researchers against infection.



Now Fisher offers a double-incineration accessory for the Isolator/Lab that keeps the interior, once it's been sterilized, germ-free—except, of course, for the specific experimental organisms intentionally introduced by the operator.

Any organisms in the air entering the sealed unit are removed by a high-efficiency filter system or killed by incineration at 750° F. Any organisms in the air exhausted from the Isolator/Lab are destroyed and removed by the same process.

A 1/6-hp pump maintains a continuous 1-cfm flow of filtered incinerated air into and out of the sealed work chamber.

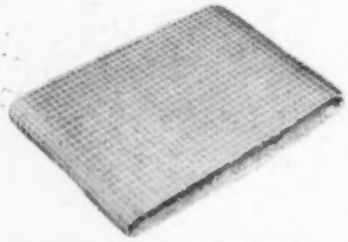
Entering air first passes through a dry impingement filter that is 99.95 per cent effective in stopping particles in the 0.3-0.5 micron range. It is then heated to 750° F for 3 seconds, destroying any organisms that remain.

Please write for full information to Fisher Scientific Ltd., 8505 Devonshire Rd., Montreal 9.

Texpack Introduces New Drainage Dressing

After years of research Texpack announces the development of a new drainage dressing with "Twinlock" double protection that combines the strength of reinforced gauze with the softness of a non-woven fabric.

This new Texpack product is called "Stren/Sofft" and is available in all standard sizes, cuts and rolls. New "Stren/Sofft" is distinguished by its clean-cut tailored cover fabric that ensures protection against lint and fraying. It comes pre-packed.



The new "Stren/Sofft" drainage dressing is heralded as a particularly important development, and as an All-Canadian achievement.

Write to Texpack Limited, 39 Spadina Road, Toronto, for additional information.

Ohio-Murphy Endotracheal Catheters

Ohio Chemical & Surgical Equipment Co. (a Division of Air Reduction Company, Inc.) Madison 10, Wisconsin, has introduced their new line of Murphy Endotracheal Catheters.

Each tube is cured in a glass container similar to a test tube which shapes the bevelled end to a smooth rounded tip. The texture of the rubber has an exceptionally fine grain. They are available with or without the built-in inflatable cuff and pilot balloon.

For additional details, please request Sheet No. 2467 from Ohio Chemical Canada, Ltd., 180 Duke St., Toronto 2.

One Common Link

What is written imaginatively in the daily work of office and industry will get desired results. If the writer looks further, what is written with imagination will live on when the Atomic Age is ancient history. Why? Because imagination is the one common link between human minds in all ages.

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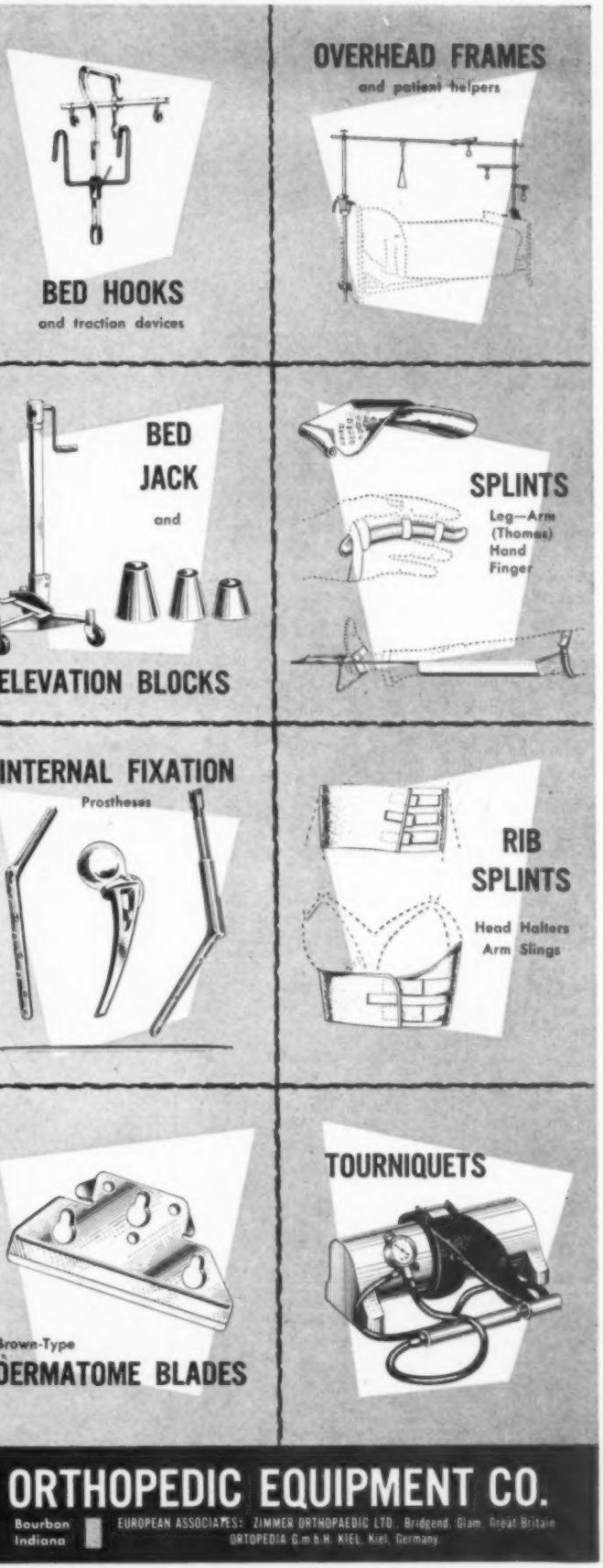

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